


Unit	NGSS	Strand	Readorium book	Readorium Magazine	
1.	Simple and Complex Machines				
	How does energy play a role in our live? How do machines impact our lives?	PS 4.1 e	Potential and kinetic energy	Sports Physics Light Sound Action Newton's Laws	Weapons Older than Dirt: The History of Some of the World's Most Ancient Weapons Things that Go Boom!: The History and Chemistry of Explosives
		PS4.1 d PS5.2 c	Mechanical energy	Amusement Park Physics Olympic Champs: It's Not Just Luck-It's Physics Unbalanced Forces	Making Hover Crafts A River of Ice
		PS5.2 f	Machines can affect the magnitude or direction of a force required to do work, or the distance over which that force is applied	Amusement Park Physics Olympic Champs: It's Not Just Luck-It's Physics Unbalanced Forces	Making Hover Crafts A River of Ice Making Hovercrafts
		PS5.2 g	Simple machines include the lever, the pulley, the wheel and axle, and the inclined plane	Olympic Champs: It's Not Just Luck-It's Physics	
		PS5.2 g	Complex machines	Amusement Park Physics Olympic Champs: It's Not Just Luck-It's Physics Unbalanced Forces	
		PS4.1 c PS5.2 c	Transformation of energy within simple and complex machines		
		PS4.5 a, b PS5.2 c	Principle of the conservation of energy	Amusement Park Physics Olympic Champs: It's Not Just Luck-It's Physics Unbalanced Forces	
		PS5.2 d, e	Friction and machines	Amusement Park Physics Olympic Champs: It's Not Just Luck-It's Physics	

		Unbalanced Forces		
2	Weather			
	How do matter and energy interact to produce weather patterns?	PS3.1a	Properties of Matter Matter is anything that takes up space and has mass	Prairie Ecosystems Rainforests Weather Global Temperatures Chilling Facts About a Burning Issue: Climate Change Quiz-Pt 1 Chilling Facts About a Burning Issue: Climate Change Quiz-Pt 2 It's Too Hot
		PS3.1a, c-f PS4.2c,d	Solids, liquids, and gases	Desert Biomes Life in the Tundra Rainforests Weather
		PS3.1c,f PS4.2c,d	Relationship between phases of matter and particle motion	Form Mountains and Deserts Earth in Motion Rainforests Weather
3		PS3.1 a, h	Density	Form Mountains and Deserts Earth in Motion Rainforests Weather Tundra Desert Biomes
	Diversity of Life	PS4.5a,b	Heating and Cooling Events Principle of the conservation of energy	Earth in Motion Weather Pollution Rainforests Global Temperatures Chilling Facts About a Burning Issue: Climate Change Quiz-Pt 1 Chilling Facts About a Burning Issue: Climate Change Quiz-Pt 2 It's Too Hot
		PS4.1a PS4.2a,b	Transfer of heat: Radiation, convection, and conduction	Earth in Motion Weather Pollution Rainforests Global Temperatures Chilling Facts About a Burning Issue: Climate Change Quiz-Pt 1 Chilling Facts About a Burning Issue: Climate Change Quiz-Pt 2 It's Too Hot
		PS3.1c PS3.2a	Heat and its relationship to phase changes	Desert Biomes Earth in Motion Make Your Own Rock Candy

	PS4.2c,d		Life in the Tundra Rainforests Weather	Matter Matters All About Recycling
	PS4.2d	Expansion and contraction		
Kingdoms of Life				
How does the transfer of matter and energy through biological communities support diversity of living things				
	LE1.1 a	What makes something alive	Microscopes Nature's Weird Surprises Our Bodies Genetics: Why We Look the Way We Do The Formation and Growth of Human Life - Mitosis and Meiosis	
	LE1.1 a-c	The cell is a basic unit of structure and function of living things	Microscopes Nature's Weird Surprises Our Bodies	Biotechnology The Brain...What's in there Cancer: Cells Out of Control The Tiny World of Cells Cells and Smells
	LE1.1 d-g	Unicellular vs multicellular organisms	The Formation and Growth of Human Life-Mitosis and Meiosis Microscopes: Seeing the Tiny World	I'm Squished (An Argument by Cell Organelles) Hair Time Raise Your Voice Cells and Smells
	LE1.1h	Biological classification systems		
	PS4.1d PS4.5a,b	Food Chains and Food Webs Principle of the conservation of energy	Dependency of Life Coral Reefs Desert Biomes Life in the Tundra Prairie Ecosystems	
	LE 5.1c LE5.2a LEb.1a-c	Flow of energy and matter through food chains and food webs	Dependency of Life Coral Reefs Desert Biomes Life in the Tundra Prairie Ecosystems	Artificial Reefs: How and Why We Build Them Garbage Island Crime-Solving Insects How Plants Trick Animals Life Inside Deep Caves

				Parasites: Nature's Thieves What Happens When Something Goes Extinct
	LE5.1d,c LE6.2a-c	Methods for obtaining nutrients Role of producers	Dependency of Life Coral Reefs Desert Biomes Life in the Tundra Prairie Ecosystems	
Interdependence				
How is interdependence essential in maintaining life on Earth	PS2.2j	Climate and Biomes Climatic regions	Dependency of Life Coral Reefs Desert Biomes Life in the Tundra Prairie Ecosystems	
	LE 7.1a ICT1.2 1.4, 4.1	Biomes: Tundra, Tropical Rain Forest, Temperate Forests, Grasslands, Desert	Dependency of Life Coral Reefs Desert Biomes Life in the Tundra Prairie Ecosystems	
	PS1.1i	Seasonal variations	Total Lunacy Earth in Motion	
	PS2.1b	Effect of elevation	Formation of Mountains and Deserts	Crystals A River of Ice
	LE7.2d PS2.2r ICT1.4, 2.1-2.3, 4.1, 5.1, 5.2, 6.1, IPS1.3	Global Warming: natural cycles vs. human impact	Earth in Motion Weather Pollution	Global Temperatures Green House Gases Let's Save Our Planet
	LE1.1h LE7.1a	Ecosystems and Interdependence Populations and definition of species	Coral Reefs Pollution Prairie Ecosystems Rainforests Chemical and Physical Properties of Matter ²	
	LE7.1a	Communities	Coral Reefs Desert Biomes Life in the Tundra Prairie Ecosystems	
	LE7.1a LE7.2a, b ICT1.2	Ecosystems (including basic abiotic factors such as water, nitrogen, CO ₂ , and oxygen)	Prairie Ecosystems Desert Biomes Rainforests	Artificial Reefs: How and Why We Build Them



Garbage Island
Life Inside Deep Caves
What Happens When
Something Goes Extinct

Unit	NGSS	Strand	Readorium book	Readorium Magazine	
1.	Geology				
	How do we as scientists gather and interpret evidence that Earth is continually changing	PS2.1a,c,d	Earth as a System Layers and composition: Lithosphere, Hydrosphere, Atmosphere, Biosphere	Earth's Systems Polluting Our Earth	The Water Cycle All About Recycling Rocks Rock
		PS 2.2h	Rocks and Minerals Rock cycle		Rocks Rock
		PS 2.2g	Classification of rocks: Sedimentary, Metamorphic, and igneous		
		PS2.1e	Properties of minerals including density		
		PS 2.1g-i	Erosion and weathering	Big Delicious Earth Caves Continental Drift Earthquakes Formation of Mountains and Deserts Plate Tectonics Sea Floor Spreading	Crystals A River of Ice
				Continental Drift Earthquakes Form Mountains Plate Tectonics Sea Floor Spreading	
				Continental Drift Earthquakes Form Mountains Plate Tectonics Sea Floor Spreading	
		LE 3.2c PS 2.1f	Dating of Rocks: Absolute and relative age		
		LE 3.2 b,c PS 2.1f PS 2.2d	The importance of the fossil record	Continental Drift Earthquakes Form Mountains Plate Tectonics Sea Floor Spreading	
				Sea Floor Spreading Plate Tectonics Formation of Mountains and Deserts	
		PS 2.2c-e	Plate Tectonics: Theory of plate movement and evidence supporting the theory	Sea Floor Spreading Plate Tectonics Formation of Mountains and Deserts	
		PS 2.2e PS 4.2b	Convection currents		
		PS 3.1 i	Buoyancy (relative density)		
PS 2.2a,f	Sea-floor spreading	Sea Floor Spreading Plate Tectonics			
PS 2.2a,c,f	Earthquakes: Faulting and folding of the earth's crust	Earthquakes			
PS 2.2a,f	Volcanoes	Formation of Volcanoes			

2		PS 2,2 a,f	Mountain building	Formation of Mountains and Deserts	
		PS 2.2a,f	Topography of Earth's surface		
	Interactions Between Matter and Energy				
	How do the properties and interactions of matter and energy explain physical and chemical change?	PS 4.1d	Properties of Sound and Light Electromagnetic energy	Lights, Sound, Action	Sound and Hearing Look a Rainbow! Where Did That Come From Cool Beams
		PS 4.4b	Wave Behavior Light reflection and refraction Vibrations and sound waves	Lights, Sound, Action	Sound and Hearing Look a Rainbow! Where Did That Come From Cool Beams
		PS 3.1 a,b,h PS 4.4f,g	The properties of materials, such as: density, conductivity, magnetic materials, and solubility	Chemical and Physical Properties of Matter 1 Chemical and Physical Properties of Matter 2	The Many Uses of Submarines
		PS 3.3e,f	Elements and compounds	Chemical and Physical Properties of Matter 1 Chemical and Physical Properties of Matter 2	Kitchen Chemistry The Cool World of Chemistry
		PS 3.3 a-d	Atoms and molecules	Chemical and Physical Properties of Matter 1 Chemical and Physical Properties of Matter 2	Gold the Magnificent Metal Crystals
	PS 3.3 g	The Periodic Table as a way of organizing the elements	Chemical and Physical Properties of Matter 1 Chemical and Physical Properties of Matter 2		
3.	Dynamic Equilibrium: The Human Animal				
	How do human body systems function to maintain homeostasis	LE 1.1 a-d	Levels of Organization Cells-structure and function	Microscopes Nature's Weird Surprises Our Bodies Genetics: Why We Look the Way We Do The Formation and Growth of Human Life-Mitosis and Meiosis	Biotechnology The Brain...What's in There Cancer: Cells Out of Control Twin Fascination The Tiny World of Cells Cells and Smells
		LE 1.1e,g LE 1.2 a,b	Tissues; organs; systems; organism		
		LE 5.1 b	The Human Body	Our Bodies: the Most	Hair Time

		Maintaining homeostasis: The human body systems digestive respiratory circulatory excretory skeletal and muscular	Marvelous Machines Becoming and Staying Healthy Nature's Weird Surprises	Raise Your Voice Cells and Smells I'm Squished (An Argument by Cell Organelles)
	LE 5.1 c,e LE 5.2 a,b	Obtaining Energy		
	LE 5.1d LE 5.1 d LE 5.2 a,b LE 5.2e	Obtaining Nutrients		
	LE 5.1 f	Regulation of the internal environment	Our Bodies Becoming and Staying Healthy	Artificial Blood
	LE 5.2c	Metabolism	Becoming and Staying Healthy	A Sweet Treat
	LE 1.2h LE 5.1g	Responding to the external environment (Nervous system)	Life and Death in the Wild (RRR)	
Dynamic Equilibrium: Other Organisms				
How is homeostasis maintained in other organisms?	LE 1.1g LE 5.1a,b LE 5.1f LE 5.2e	Other Animals Animal structures and systems Maintaining homeostasis	Beetlemania Birds of a Feather Buzzing About Bees and Wasps	Amazing Water Bear Bee Bee-havior Beneath the Fin Carnivorous Dinosaurs
	LE 5.1c,e LE 5.2a	Obtaining energy	Deep Sea Creatures Invasive Species	Cicada Swarm Emperor Penguins
	LE 5.1d LE 5.2a,b	Obtaining nutrients	Exploring Ecosystems How We Learn Life and Death in the Wild	Friendship of a Goby and a Shrimp Hair Time! How Spiders Catch Prey
	LE 5.1f LE 1.1f	Regulation of the internal environment Plants Plant structures and systems	Our Gross World The Secret Languages of Animals	Science of Jelly Beans Venus Flytrap: A Meat Eating Plant
	LE 5.1f LE 5.2e	Maintaining homeostasis	Smarter than you Think Spider Stories Weird and Wonderful Plants	Wonder Fabrics-Things that Can't Get Wet! Why Dandelions Are Dandy Why Are Some Hands More "Handy than Others
	LE 5.1 c, LE 5.2 a, LE 6.2 a	Obtaining energyAll RRR Library	

8th grade

Unit	NGSS	Strand	Readorium book	Readorium Magazine	
1.	Reproduction, Heredity, and Evolution				
	How does life on Earth continue and adapt in response to environmental change?	LE 2.1d LE 4.1a,b	Reproductive Patterns and the Continuity of Life Asexual reproduction, e.g., Binary fission in unicellular organisms, budding, and vegetative propagation	Our Gross World (RRR) The Weird and Wonderful World of Plants (RRR)	Twin Fascination
		LE 2.1d LE 4.1a,c,d LE 4.2b LE 4.4c	Sexual Reproduction-formation of gametes	Formation of Growth: Mitosis and Meiosis	
		LE 4.1a	Compare and contrast results, contexts, advantages and disadvantages of each method		
		LE 4.3a,c,e,f	Patterns of Development and the Continuity of Life Patterns of development in plants	The Weird and Wonderful World of Plants (RRR)	
		LE 4.3a,c,d,f	Patterns of development in animals		
		LE 4.4a,b	Cell division-growth, maintenance, and repair	Formation and Growth of Human Life: Mitosis and Meiosis	
		LE 4.4d	Cancer is the result of abnormal cell division		Cancer Cells Out of Control
		LE 2.1a-e	Heredity Genes and DNA	Genetics: Why We Look the Way We Do	
		LE 2.2a-c	Mendelian genetics	Inheritance, It's All in the Genes (RRR)	
		LE 3.1a	Mutations		
		LE 4.2a,b	Role of Sexual and Asexual Reproduction in Human Growth and Development The role of the sperm and egg		
		LE 1.2i	Human reproductive system		
		LE 1.2h	Hormonal regulation: Endocrine system		
		LE 4.3b	Patterns of development: cell division and genetic expression	Genetics: Why We Look the Way We Do Inheritance, It's All in the Genes (RRR)	
	LE 1.2j	Genetic diseases			
	LE 3.1c IPS 1.2, 1.3	Genetic engineering, esp. cloning		Biotechnology (RRR) Cloning: The More the Merrier The Warrior Gene Designer Dogs	

	LE3.1a	Natural Selection: The Driving Mechanism Behind Evolution Sources of variation in organisms	Surviving Nature Scientists who Changed the World Life and Death in the Wild (RRR)	
	LE 3.1a-c	Adaptations	Surviving Nature Desert Biomes Birds of a Feather (RRR) Invasive Species (RRR)	Evolution of the Pepered Moth
	LE 3.2a	Competition	Surviving Nature Desert Biomes Life and Death in the Wild (RRR) The Dependency of Life (RRR) Invasive Species (RRR)	
	LE 3.2b LE 7.2d	Extinction	Surviving Nature Life and Death in the Wild (RRR)	
	LE 3.2c,d	Evidence for evolution	Continental Drift Earthquakes Form Mountains Plate Tectonics Sea Floor Spreading	Getting DNA Out of Ancient Fossils
Humans and Their Environment: Needs and Tradeoffs				
How does Human consumption of resources impact the environment	LE 3.2b LE 7.2c,d ICT 1.2, 1.4, 2.1-2.3, 4.1, 4.2, 5.1, 5.2, 6.1, 6.2 IPS 1.1-1.4 IPS 2.1	Environmental concerns: Acquisition and depletion of resources; Waste disposal; Land use and urban growth; Overpopulation; Global Warming; Ozone depletion; Acid Rain; Air pollution; Water pollution; Impact on other organisms	Pollution Prairie Ecosystems Rainforests Scientific Method	Green House Gases Global Temperatures Let's Save Our Planet Shrimp Farming: A Shocking Event
	PS 4.5a,b ICT 1.1-1.4, 2.1-2.3, 4.1, 5.1, 5.2, 6.1, 6.2 IPS 1.1-1.4 IPS 2.1	Energy Conservation	Chemical and Physical Properties of Matter 1 Chemical and Physical Properties of Matter 2 Formation of Volcanoes Lights Sound Action	Splash The Water Cycle

				Plate Tectonics Weather Powering our Lives with Energy (RRR)	
	LE 7.2c,d ICT 6.1, IPS 1.1-1.4 IPS 2.1	Nutrition and Food Choices: Impact on the Environment and on our Health Environment: Environmental toxins: pesticides and herbicides; fertilizers; organic waste		Becoming and Staying Healthy Nature's Weird Surprises Our Bodies Polluting Our Earth (RRR) Powering our Lives with Energy (RRR)	
	LE 7.2c,d ICT 5.2 IPS 1.1-1.4 IPS 2.1	Endangered species: Habitat destruction, over fishing		Coral Reefs Desert Biomes Life in the Tundra Prairie Ecosystems	
	ICT 5.2 IPS 1.1-1.4 IPS 2.1	Packaging and solid waste		Polluting Our Earth Our Planet Earth	All About Recycling Debris Filling the Ocean ...All RRR Library
	LE 7.2c,b ICT 5.2 IPS 1.1-1.4 IPS 2.1	Water issues: depletion; pollution		Polluting Our Earth (RRR)	
	LE 5.2a,b ICT 6.1	Homeostasis and Health: Analyzing nutritional value			
	LE 1.2j LE5.2f IPS 1.1-1.4 IPS 2.1	Food-borne illness: Infectious disease and the immune system (bacteria, parasites)		Food Chemistry	
	LE 1.2j LE 4.4d LE 5.2f IPS 1.1-1.4 IPS 2.1	System failures: heart disease; high blood pressure; colon cancer; epidemics of childhood obesity and diabetes; osteoporosis			
3	Earth, Sun, Moon System				
	What roles do forces play in the pattern and stability of the Solar System?	PS 1.1e,h	Seasons and Cycles: Relationships Among the Sun, Earth, and Moon Day: rotation	Total Lunacy Earth in Motion Inner and Outer Planets	The Surface and Eclipses of the Moon
		PS 1.1 e,h	Year: revolution		
		PS 1.1i	Seasons: tilt of Earth's axis of rotation		
		PS 1.1g	Phases of the Moon		
		PS 1.1 e	Eclipses		
		PS 1.1 e	Tides		

	PS 1.1a-c, j	Solar System Classification of celestial objects: starts including the sun; planets; comets; moons; and asteroids	Lives of Stars Deep Space (RRR)	They Deep Mystery of Black Holes The Surface and Eclipses of the Moon A Trip to Mars (RRR) Catching a Comet (RRR) The Biggest Shadow of All: A Solar Eclipse (RRR) Our Own Star, the Sun (RRR) Strange Stars(RRR) Where Did the Planets Come From (RRR) Treasures in the Sky (RRR) Our Galactic Neighborhood (RRR) The Future of the Sun (RRR) The Challenge of Gravity (RRR)
	PS 1.1c-i PS 5.1a-c	Patterns of motion, frame of reference and position, direction, and speed	Total Lunacy Earth in Motion	
	PS 1.1 c,e,g,h PS 5.1c	Observe, describe, and compare the effects of balanced and unbalanced forces on the motion of objects Newton's First Law of Motion: Inertia	Inner and Outer Planets Newton's Laws Scientists who Changed the World Sports Physics	
	PS 1.1d PS 5.2a	gravity		The Challenge of Gravity (RRR) Gravity-The Evil Basketball Player
4	Forces and Motion on Earth			
	PS 5.1 a,b	Motion and Newton's Laws Patterns of motion, frame of reference and position, direction, and speed	Newton's Laws Scientists who Changed the World Sports Physics	A Titanic Collision: The Science Behind the Sunken Ship Gravity-The Evil Basketball Player
	PS 5.1 c	Newton's First Law of Motion: Inertia		
	PS 5.1e PS 5.2 b	Newton's Second Law: F=ma (conceptual understanding as opposed to teaching the formula) Newton's Third Law: For every action there is an equal and opposite reaction; Force as an		

