Readorium Alignment to FOSS Kit: Earth History		
Readorium Books By Standard	**Magazine Articles (A) and Science Alive Videos (V) By Standard**	**Teacher Resource Center Classroom Strategy Lessons (CL) with Articles (A) by Standard**
NGSS: MS-ESS1: Earth's place in the universe-What is the universe, and what is Earth's place in it?		
NGSS: MS-ESS1.C: The history of planet Earth How do people reconstruct and date events in Earth's planetary history? [The geological time scale interpreted from rock strata provides a way to organize Earth's history. Major historical events include the formation of mountain chains and ocean basins, the evolution and extinction of particular living organisms, volcanic eruptions, periods of massive glaciation, and development of watersheds and rivers through glaciation and water erosion. Analyses of rock strata and the fossil record provide only relative dates, not an absolute scale.]		
• Inner and Outer Planets	• Let's Save Our Planet!(A)	• Context Clues (CL-2, A-2, The Search for Life on Mars)
NGSS: 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.		
• Big Delicious Earth	•	•
NGSS: MS-ESS2.A: Earth materials and systems How do the major Earth systems interact? [All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. This energy is derived from the Sun and Earth's hot interior. The energy that flows and matter that cycles produce chemical and physical changes in Earth's materials and living organisms. The planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth's history and will determine its future.]		
• Prairie Ecosystems • Rainforests • Weather	• Crazy Careers in Science (garbologist) • Inventor of the Toughest Stuff (A) • Icy Evidence in the Core(V)	•
NGSS: MS-ESS2.B: Plate tectonics and large-scale system interactions Why do the continents move, and what causes earthquakes and volcanoes? [Plate tectonics is the unifying theory that explains the past and current movements of the rocks at Earth's surface and provides a framework for understanding its geological history. Plate movements are responsible for most continental and ocean floor features and for the distribution of most rocks and minerals within Earth's crust. Maps of ancient land and water patterns, based on investigations of rocks and fossilsm make clear how Earth's plates have moved great distances, collided, and spread apart.]		
• Big Delicious Earth • Caves • Continental Drift • Earthquakes • Formation of Mountains and Deserts • Plate Tectonics • Sea Floor Spreading	• Crystals(A) • River of Ice (A) • Icy Evidence in the Core (V) • Science on Ice (V) • Hurricane Hunting (V) • Twist and Shout: Tornado Trouble (V)	•
NGSS: MS-ESS2.C: The roles of water in Earth's surface processes. How do the properties and movements of water shape Earth's surface and affect its systems? [Water's movements-both on the land and underground-cause weathering and erosion, which change the land's surface features and create underground formations.]		
• Continental Drift • Earthquakes	• Getting DNA Out of Ancient Fossils	•

• Formation of Mountains and Deserts • Plate Tectonics • Sea Floor Spreading		
NGSS: MS-ESS2-1: Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.		
• Prairie Ecosystems • Rainforests • Weather	• Crazy Careers in Science (garbologist) • Inventor of the Toughest Stuff (A) • Icy Evidence in the Core(V)	•
NGSS: MS-ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and special scales.		
• Big Delicious Earth • Caves • Continental Drift • Earthquakes • Formation of Mountains and Deserts • Plate Tectonics • Sea Floor Spreading	• Crystals(A) • River of Ice (A) • Icy Evidence in the Core (V) • Science on Ice (V) • Hurricane Hunting (V) • Twist and Shout: Tornado Trouble (V)	•
NGSS: 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		
• Continental Drift • Earthquakes • Formation of Mountains and Deserts • Plate Tectonics • Sea Floor Spreading	• Getting DNA Out of Ancient Fossils	•
NGSS: MS-ESS3: Earth and human activity-How do Earth's surface processes and human activities affect each other?		
NGSS: MS-ESS3.A: Natural resources How do humans depend on Earth's resources? [Humans depend on Earth's land, ocean, atmosphere, and biosphere for many different resources. Minerals, fresh water, and biosphere resources are limited, and many are not renewable or replaceable over human lifetimes. These resources are distributed unevenly around the planet as a result of past geological processes. Renewable energy resources, and the technologies to exploit them, are being rapidly developed.]		
• Big Delicious Earth • Formation of Volcanoes	•	•
NGSS: MS-ESS3.B: Natural hazards How do natural hazards affect individuals and societies? [Some natural hazards, such as volcanic eruptions and severe weather, and preceded by phenomena that allow for reliable predictions. Others, such as earthquakes, occur suddenly and with no notice, and thus they are not yet predictable. However, mapping the history of natural hazards in a region, combined with an understanding of related geological forces can help forecast the locations and likelihoods of future events.]		
• Coral Reefs • Learning from Natural Disasters • Weather	• Space Junk: Are We Trashing our Solar System? (A)	• Print Features CL-3 A-2 Flying Into a Hurricane)
NGSS: MS-ESS3.C: Human impacts on Earth systems How do humans change the planet? [Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of many other species. Bur changes to Earth's environments can have different impacts (negative and positive) for different living things. Typically, as human populations and per capita consumption		

of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise.]		
• Pollution • Prairie Ecosystems • Rainforests • Scientific Method	• Bones Tell the Story (A) • Greenhouse Gases (A) • Global Temperatures (A) • Let's Save Our Planet!(A)	• Graphic Features (CL-1, A-2 What Happened to the Blue Whale?)
NGSS: MS-ESS3.D: Global climate change. How do people model and predict the effect of human activities on Earth's climate? [Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming). Reducing human vulnerability to whatever climate chanes do occur depends on the understanding of climate science, engineering capabilities, and other kinds of knowledge, such as understanding of human behavior, and on applying that knowledge wisely in decisions and activities.]		
• Coral Reefs • Pollution • Prairie Ecosystems • Rainforests	• Global Temperatures (A)	•
NGSS: MS-ESS3-1: Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral energy, and ground water resources are the result of past and current geoscience processes.		
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NGSS: MS-ESS3-2: Analyze and interpret data on natural hazards to forecast future catastrophic events and infrom the development of technologies to mitigate their effects.		
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NGSS: MS-ESS3-3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment		
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NGSS: 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.		
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NGSS: MS-ESS3-5: Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century		
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NGSS: MS-LS4: Biological evolution: Unity and diversity-How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms? How does biodiversity affect humans?		
NGSS: MS-LS4.A: Evidence of common ancestry and diversity What evidence shows that different species are related? [Fossils are mineral replacements, preserved remains, or traces of organisms that lived in the past. Thousands of layers of sedimentary rock not only provide evidence of the history of Earth itself but also of changes in organisms whose fossil remains have been found in those layers. The collection of fossils and their placement in chronological order (e.g., through the location of the sedimentary layers in which they are found or through radioative dating) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life-forms throughout the history of life on Earth. Because of the conditions necessary for their preservation, not all types of organisms that exited in the past have left fossils that can be retrieved. Anatomical similarities and difference between various organisms living today and between them and organisms in the fossil record enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent. Comparison of the embryological development of different species also reveals similarities that show relationships not evident in the fully formed anatomy.]		
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NGSS: 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.		
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