Readorium Rising Reader (GR 3-5) Alignment with Georgia State Science Standards

3rd Grade					
Habits of Mind	**Characteristics of Science**				
			Readorium Books	**Readorium Articles/Videos**	**Teacher Resource Center Classroom Strategy Lessons (CL) with Articles (A) by Standard**
S3CS1	Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.	a. keep records of investigations and observations and do not alter the records later	· Science -What's it All About	What is Sea Ice and Why is it Shrinking?(V)	
		b. Offer reasons for findings and consider reasons suggested by others	· Science -What's it All About	· Cancer: Cells Out of Control(A)	
		c. Take responsibility for understanding the importance of being safety conscious.	· Science -What's it All About	· Twin Fascination(A)	
S3CS2	Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations	a. add, subtract, multiply, and divide whole numbers mentally, on paper, and with a calculator	· How We Learn	· The Brain!(A) · How Do We Think?(A)	
		b. use commonly encountered fractions-halves, thirds, and fourths (but not sixths, sevenths, and so on)- in scientific calculations	All Readorium's books, articles, videos, and personalized lessons delve into the multitude of topics in science that include the appropriate mathematical measurements. However, the mathematical practice that students need to experience should be found in the structured curricula of the district.		

Readorium Rising Reader (GR 3-5) Alignment with Georgia State Science Standards

		c. judge whether measurements and computations of quantities, such as length, weight, or time, are reasonable answers to scientific problems by comparing them to typical values		· Aurora Borealis: The Glowing Lights(A)	
S3CS3	Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities utilizing safe laboratory procedures	a. choose appropriate common materials for making simple mechanical constructions and repairing things		· Amazing Teen Scientist(A) · Making Hovercrafts(A) · How to Make a Volcano(A) · Making a Potato Battery(A) · How to Make Your Own Slime(A) · How to Make Elephant · Toothpaste(A)	
		b. use computers, cameras and recording devices for capturing information	· The Computer Revolution · Deep Space · Exploring the Ocean's Depth	· The Science of Movie Stunts(A) · The Venus Flytrap: A Meat-Eating Plant(A) · The Amazing Water Bear(A) · Make Way for Ducklings(V) What is Sea Ice and Why is it Shrinking?(V)	· Author's Purpose (CL-1, A-1, Be a Weather Scientist) · Click or Clunk (CL-1, A-3, , The Many Uses of Submarines)
		c. identify and practice accepted safety procedures in manipulating science materials and equipment	· Science Girls		
S3CS4	Students will use ideas of system, model, change, and scale in exploring	a. observe and describe how parts influence one another in things with many parts	· Science Girls · How We Learn	· A Computer's Best Friend(A) The Brain!(A)	
		b. use geometric		· The Science of Movie Stunts(A)	· Graphic Features (CL-1, A-1

	scientific and technological matters	figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories to represent corresponding features of objects, events and processes in the real world			What is "Global Climate Change?) · Graphic Features (CL-1, A-2 What is “The Greenhouse Effect”?) · Graphic Features (CL-1, A-2 How do We Know the Climate is Changing”?) · Graphic Features (CL-2, A-2 Your Brain at Sleep) · Graphic Features (CL-3, A-3, Head Lice—Don’t Bug Me!)
		c. identify ways in which the representations do not match their original counterparts	Readorium is a web-based reading comprehension program that gives the students the opportunity to learn about what scientists do and how they do it. Performance activities and hands on opportunities should be given to the students through the district chosen science curriculum.		
S3CS5	Students will communicate scientific ideas and activities clearly	a. write instructions that others can follow in carrying out a scientific procedure	· Science -What’s it All About	· Why Are Some Hands More "Handy" (A)	· Inferring and Predicting (CL-3, A-3, Cafeteria Chemistry)
		b. make sketches to aid in explaining scientific procedures or ideas		· Making Hovercrafts(A) · How to Make a Volcano(A) · Making a Potato Battery(A) · Make Your Own Rock Candy(A) · How to Make Your Own Slime(A) · How to Make Elephant Toothpaste(A) · A Trip to Mars(A)	Graphic Features (CL-1, A-1 What is "Global Climate Change?)
		c. use numerical data in describing and comparing objects and events	· Science -What’s it All About	· Matter Matters(A)! · Twin Fascination(A)	
		d. locate scientific	· Science -What’s it All	· A Computer's Best Friend(A)	

		information in reference books, back issues of newspapers and magazines, CD-ROMs, and computer databases	About · Computer Revolution (The) · Deep Space		
S3CS6	Students will question scientific claims and arguments effectively	a. support statements with facts found in books, articles, and databases and identify the sources used.	· Science -What's it All About	· The Brain!(A) · Why Are Some Hands More "Handy" (A) · Mysteries of the Common Cold(A) · The Venus Flytrap: A Meat-Eating Plant(A) · Why Dandelions Are Dandy(A) · Make Way for Ducklings(V)	
The Nature of Science					
S3CS7	Students will be familiar with the character of scientific knowledge and how it is achieved	a. similar scientific investigations seldom produce exactly the same results, which may differ due to unexpected differences	· Science -What's it All About · How We Learn	· Biotechnology(A) · Burping is Natural(A) · Bee Bee-havior(A) · Tigers and Lions!(A) · The Amazing Water Bear(A) · How Spiders Catch Prey(A) · Fireflies of the Ocean: Noctiluca Scintillans(A) · Make Way for Ducklings(V)	
		b.Some scientific knowledge is very old and yet is still applicable today.		· Splash(A) · Matter Matters! (A) · Spirit and Opportunity on Mars:(A) · Where Did the Planets Come From?(A) · Voyager Space Probes(A) · Tsunami Research(V)	
S3CS8	Students will understand important	a. Scientific investigations may take many different	· Science -What's it All About	· Crime Scene Science(A) · Burping is Natural(A) · The Brain!(A)	Questioning (CL-2, A-1 Crazy Careers in Science)

	features of the process of scientific inquiry. Students will apply the following to inquiry learning practices.	forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments.		· Bee Bee-havior(A) · Tigers and Lions!(A) What is Sea Ice and Why is it Shrinking?(V) · Weird Animal Defense Mechanisms(A) · Fireflies of the Ocean: Noctiluca Scintillans(A) · The Amazing Water Bear(A) · The Venus Flytrap: A Meat-Eating Plant(A) · How Spiders Catch Prey(A) Antlers, Shells, and Beaks (V) · Make Way for Ducklings(V) · Science Pirates - Hypothesis (V)	
		b. Clear and active communication is an essential part of doing science. It enables scientists to inform others about their work, expose their ideas to criticism by other scientists, and stay informed about scientific discoveries around the world.	· Science -What's it All About · Science Girls	· Amazing Teen Scientist(A) · How to Make a Volcano(A) · Make Your Own Rock Candy(A) · How to Make Your Own Slime(A) · How to Make Elephant · Toothpaste(A) · Black Holes(V) · When Lightning Strikes(V)	
		c. Scientists use technology to increase their power to observe things and to measure and compare things accurately	· Science -What's it All About · Science Girls · Smarter Than You Think · Weather Around the World	· A Computer's Best Friend(A) · The Science of Movie Stunts(A) · Twin Fascination(A) · Aurora Borealis: The Glowing · Lights(A) · Earthquakes(V) · Tsunami Research(V) ·Core on the Floor(V)	

Readorium Rising Reader (GR 3-5) Alignment with Georgia State Science Standards

				· Robobees (V) · Robotic Arms(V)	
		d. Science involves many different kinds of work and engages men and women of all ages and backgrounds	· Science Girls	· Why Are Some Hands More "Handy" (A) ·Spelbots (V)	Word learning Techniques (CL-1, A-2 How Archaeologists Work)
Earth Science					
S3E1.	Students will investigate the physical attributes of rocks and soils	a. Explain the difference between a rock and a mineral		· Rocks Rock(A) · A River of Ice(A) Antlers, Shells, and Beaks(V)	
		b. Recognize the physical attributes of rocks and minerals using observation (shape, color, texture), measurement, and simple tests (hardness)		· Rocks Rock(A)	
		C. use observation to compare the similarities and differences of texture, particle size, and color in top soils (such as clay, loam, or potting soil, and sand)	Using Readorium's reading comprehension program, students will read about investigations that have been completed by scientists of many fields.		
		D.determine how water and wind can change rocks and soil		· Rocks Rock(A)	

		over time using observation and research			
S3E2	Students will investigate fossils as evidence of organisms that lived long ago	a.investigate fossils by observing authentic fossils or models of fossils or view information resources about fossils as evidence of organisms that lived long ago	· Birds of a Feather · Dependency of Life (The)	· Rocks Rock(A) · Biotechnology(A)	· Word learning Techniques (CL-1, A-1 What is Archeology) · Word learning Techniques (CL-1, A-2 How Archaeologists Work)
		B.describe how a fossil is formed	· Dependency of Life (The) · Powering Our Lives with Energy		
Physical Science					
S3P1	Students will investigate how heat is produced and the effects of heating and cooling, and will understand a change in temperature indicates a change in heat	A.categorize ways to produce heat energy such as burning, rubbing (friction), and mixing one thing with another.	· Amusement Park Physics · Olympic Champs: · It's Not Just Luck – It's Physics! · On the Move with · Transportation ·Technology · Unbalanced Forces	· The Science of Movie Stunts(A)	
		B. Investigate how insulation affects heating and cooling		· Cool Beams!(A)	

		C. investigate the transfer of heat energy from the sun to various materials		· Our Own Star, the Sun(A) Strange Stars(A)	· Graphic Features (CL-1, A-1 · What is "Global Climate Change?) · Graphic Features (CL-1, A-2 · What is "The Greenhouse Effect"?)
		D. use thermometers to measure the changes in temperatures of water samples (hot, warm, cold) over time		· Splash(A) The Science of Jelly Beans(A) What is Sea Ice and Why is it Shrinking?(V)	
S3P2	Students will investigate magnets and how they affect other magnets and common objects	A.investigate to find common objects that are attracted to magnets		· Aurora Borealis: The Glowing Lights(A)	
		B. investigate how magnets attract and repel each other	Using Readorium's reading comprehension program, students will read about investigations that have been completed by scientists of many fields.		
Life Science					
S3L1	Students will investigate the habitats of different organisms and the dependence of organisms on their habitat	A.differentiate between habitats of Georgia (mountains, marsh/swamp, coast, Piedmont, Atlantic Ocean) and the organisms that live there	Using Readorium's reading comprehension program, students will read about investigations that have been completed by scientists of many fields.		
		b.Identify features of green plants that allow them to live and thrive in different regions of		· Wonder Fabrics (A) · Biotechnology(A) · A Sweet Treat(A) · The Venus Flytrap: A Meat-Eating Plant(A)	

		Georgia			
		C.identify features of animals that allow them to live and thrive in different regions of Georgia		· Crime Scene Science(A) · Bee Bee-havior(A) · Tigers and Lions!(A) · Weird Animal Defense Mechanisms (A) · The Amazing Water Bear(A) · Fireflies of the Ocean: Noctiluca Scintillans(A) · Cicada Swarm(A) · Carnivorous Dinosaurs(A) · Herbivorous Dinosaurs(A) · How Spiders Catch Prey(A) · Make Way for Ducklings(V) · Orangutan Copycats(V) · Beluga Whales(V) · Emperor Penguins(V) · Polar Bears(V) · Walruses(V) · Babies and Learning(V) · Bird Brains(V) · Invasion of the Earthworms!(V) · Social Insects(V) · Batty for Bats(V) Antlers, Shells, and Beaks(V) Pig Poop Fuel(V) Virtual Reality Scientists(V) Sea Turtles(V)	
		d.Explain what will happen to an organism if the habitat is changed	· Beetlemania · Birds of a Feather · Deadliest Creatures · Deep Sea Creatures · Dependency of Life · Exploring Ecosystems · Invasive Species · Spider Stories	Why Are Some Hands More "Handy" (A)	· Click or Clunk (CL-1, A-1, Why Save Rainforests?) · Main Idea and Supporting Details (CL-1, A-1 & 2 ,Mantled Howler Monkeys)

			· Weird and Wonderful World of Plants		
S3L2	Students will recognize the effects of pollution and humans on the environment	a. Explain the effects of pollution (such as littering) to the habitats of plants and animals	· Polluting Our Earth · Earth's Systems · Exploring the Ocean Depths	Our Debris Filling the Ocean(V)	· Click or Clunk (CL-2, A-2, Garbage Island)
		b.Identify ways to protect the environment. Conservation of resources recycling of materials	· Polluting Our Earth · Earth's Systems · Exploring the Ocean Depths	Our Debris Filling the Ocean(V)	· Click or Clunk (CL-2, A-2, Garbage Island) · Questioning (CL-2, A-1 Crazy Careers in Science)

4th Grade					
Habits of Mind	**Characteristics of Science**				
			Readorium books	**Readorium Articles and Videos**	**Teacher Resource Center Classroom Strategy Lessons (CL) with Articles (A) by Standard**
S4CS1	Students will be aware of the importance of curiosity, honesty,	a.Keep records of investigations and observations and do not alter the records later	· Science -What's it All About	What is Sea Ice and Why is it Shrinking?(V)	

	openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works	b.Carefully distinguish observations from ideas and speculation about those observations	· Science -What's it All About	· How Do We Think?(A)	
		c.Offer reasons for findings and consider reasons suggested by others	· Science -What's it All About	· Cancer: Cells Out of Control(A)	
		d.Take responsibility for understanding the importance of being safety conscious	· Science -What's it All About		
S4CS2	Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.	a.Add, subtract, multiply, and divide whole numbers mentally, on paper, and with a calculator			
		b.Use fractions and decimals, and translate between decimals and commonly encountered fractions-halves, thirds, fourths, fifths, tenths, and hundredths (but not sixths, sevenths, and so on)-in scientific calculations	All Readorium's books, articles, videos, and personalized lessons delve into the multitude of topics in science that include the appropriate mathematical measurements. However, the mathematical practice that students need to experience should be found in the structured curricula of the district.		
		c.Judge whether measurements and computations of quantities, such as length, area, volume, weight, or time, are reasonable answers to scientific problems by			

		comparing them to typical values.			
S4CS3	Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities utilizing safe laboratory procedures	a.Choose appropriate common materials for making simple mechanical constructions and repairing things.		· The Science of Movie Stunts(A) · Making Hovercrafts(A)	
		b.Measure and mix dry and liquid materials in prescribed amounts, exercising reasonable safety.	· Making Movie Magic	· The Science of Jelly · Beans(A) · How to Make a Volcano(A) · Making a Potato Battery(A) · Make Your Own Rock Candy(A) · How to Make Your Own Slime(A)	
		c.Use computers, cameras and recording devices for capturing information	· Computer Revolution · Deep Space · Exploring the Ocean Depths	· Spirit and Opportunity on Mars:(A) · Voyager Space Probes(A) Black Holes(V)	Author's Purpose (CL-1, A-1, Be a Weather Scientist) Click or Clunk (CL-1, A-3, , The Many Uses of Submarines)
		d.Identify and practice accepted safety procedures in manipulating science materials and equipment	Amazing Teen Scientist(A)		
S4CS4	Students will use ideas of systems, model, change, and scale in exploring scientific and technological matters	a.Observe and describe how parts influence one another in things with many parts		· The Brain!(A) · How Do We Think?(A)	
		b.Use geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories to			Graphic Features (CL-1, A-1 What is "Global Climate Change?) Graphic Features (CL-1, A-2

		represent corresponding features of objects, events, and processes in the real world. Identify ways in which the representations do not match their original counterparts			What is "The Greenhouse Effect"?) Graphic Features (CL-1, A-2 How do We Know the Climate is Changing"?) Graphic Features (CL-2, A-2 Your Brain at Sleep) Graphic Features (CL-3, A-3, Head Lice—Don't Bug Me!)
		c.Identify patterns of change in things-such as steady, repetitive, or irregular change-using records, tables, or graphs of measurements where appropriate			
S4SC5	Students will communicate scientific ideas and activities clearly	a.Write instructions that others can follow in carrying out a scientific procedure	· Science -What's it All About	· The Brain!(A) · Making Hovercrafts(A) · How to Make a Volcano(A) · Make Your Own Rock Candy(A) · How to Make Your Own Slime(A)	
		b.Make sketches to aid in explaining scientific procedures or ideas		· Twin Fascination(A)	
		c.Use numerical data in describing and comparing objects and events	· Science -What's it All About	· Splash(A) · The Water Cycle(A) · Wonder Fabrics (A)	

		d.Locate scientific information in reference books, back issues of newspapers and magazines, CD-ROMs, and computer databases	· Science -What's it All About · Computer Revolution (The) · Deep Space	· Biotechnology(A)	
S4CS6	Students will question scientific claims and arguments effectively	a.Support statements with facts found in books, articles, and databases, and identify the sources used		Burping is Natural(A)	· Graphic Features (CL-1, A-2 How do We Know the Climate is Changing"?)
		b.Identify when comparisons might not be fair because some conditions are different			
The Nature of Science					
S4CS7	Students will be familiar with the character of scientific knowledge and how it is achieved	a.Similar scientific investigations seldom produce exactly the same results, which may differ due to unexpected differences in whatever is being investigated, unrecognized differences in the methods or circumstances of the investigation, or observational uncertainties		· How to Make a Volcano(A) · Making a Potato Battery(A) · The Venus Flytrap: A · Meat-Eating Plant(A) · How Spiders Catch Prey(A) · Make Way for Ducklings(V) · Monkey Business(V) · Orangutan Copycats(V) · Emperor Penguins(V) · Polar Bears(V) · Walruses(V) · Bird Brains(V) · Social Insects(V) · Batty for Bats(V) Virtual Reality Scientists(V) Sea Turtles(V)	

Readorium Rising Reader (GR 3-5) Alignment with Georgia State Science Standards

				Core on the Floor(V) What is Sea Ice and Why is it Shrinking?What is Sea Ice and Why is it Shrinking?	
		b.Some scientific knowledge is very old and yet is applicable today		Matter Matters!(A) The Water Cycle(A)	
S4CS8	Students will understand important features of the process of scientific inquiry	a.Scientific investigations may take many different forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments	· Science: What's it All About? · Science Girls · Smarter Than You Think	· Burping is Natural(A) · Bee Bee-havior()A) · Tigers and Lions!(A) · Weird Animal Defense Mechanisms(A) · Interesting and Funny · Animal Relationships(A) · Herbivorous Dinosaurs(A) · Make Way for Ducklings(V) · The Amazing Water Bear(A) · Cicada Swarm(A) · Why Dandelions Are Dandy(A) · How Spiders Catch Prey(A) · Fireflies of the Ocean: Noctiluca Scintillans(A) · Beluga Whales(V) · Emperor Penguins(V) · Polar Bears(V) · Walruses(V) · Babies and Learning(V) · Bird Brains(V) · Picking Your Brain(V) · Leaf Cutter Ants(V) · Invasion of the Earthworms!(V)	

Readorium Rising Reader (GR 3-5) Alignment with Georgia State Science Standards

				· Social Insects(V) · Batty for Bats(V) · Black Holes(V) · Tsunami Research(V) Antlers, Shells, and Beaks(V) When Lightning Strikes(V) Pig Poop Fuel(V) Virtual Reality Scientists(V) Sea Turtles(V) Core on the Floor(V) Our Debris Filling the Ocean(V)	
		b.Clear and active communication is an essential part of doing science. It enables scientists to inform others about their work, expose their ideas to criticism by other scientists, and stay informed about scientific discoveries around the world	· Science: What's It All About? · Science Girls	· Amazing Teen Scientist(A) · How Do We Think?(A) · Cancer: Cells Out of Control(A) · Making Hovercrafts(A) · How to Make Elephant Toothpaste(A) What is Sea Ice and Why is it Shrinking?(V)	
		c.Scientists use technology to increase their power to observe things and to measure and compare things accurately	· Smarter Than You Think · Science: What's It All About? · Science Girls · Smarter Than You Think	· Matter Matters!(A) · Splash(A) · Wonder Fabrics (A) · The Science of Jelly Beans(A) · Robobees (V) · Robotic Arms(V)	
		d.Science involves many	· Science: What's It All	· Biotechnology(A)	

		different kinds of work and engages mend and women of all ages and backgrounds	About? · Science Girls	· The Spelbots (V)	
Earth Science					
S4E1	Students will compare and contrast the physical attribute of stars, star patterns, and planets	a.Recognize the physical attributes of stars in the night sky such as number, size, color and patterns	· Deep Space	· Spirit and Opportunity on Mars:(A) · The Biggest Shadow of All: · A Solar Eclipse(A) · Where Did the Planets Come From?(A) · Voyager Space Probes(A) · The Challenge of · Gravity(A) · Black Holes(V) · Earthquakes(V) · Tsunami Research(V) · When Lightning Strikes(V) Core on the Floor(V) What is Sea Ice and Why is it Shrinking?(V)	
		b.Compare the similarities and differences of planets to the stars in appearance, position, and number in the night sky		· Strange Stars(A) · The Future of the Sun(A)	· Inferring and Predicting (CL-1, A-2 What is a Planet?)
		c.Explain why the pattern of stars in a constellation stays the same, but a planet can be seen in different locations at different times	· Deep Space	· Where Did the Planets Come From?(A) · Treasures in the Sky(A)	· Inferring and Predicting (CL-1, A-2 What is a Planet?)

Readorium Rising Reader (GR 3-5) Alignment with Georgia State Science Standards

		d.Identify how technology is used to observe distant objects in the sky	· Living in Space · Deep Space	· Catching a Comet(A) · Treasures in the Sky(A) · The Challenge of Gravity(A) · Black Holes(V)	
S4E2	Students will model the position and motion of the earth in the solar system and will explain the role of relative position and motion in determining sequence of the phases of the moon	a.Explain the day/night cycle of the Earth using a model	· Our Planet Earth	· A Trip to Mars(A)	· Inferring and Predicting (CL-1, A-1, What Causes the Seasons?) · Inferring and Predicting (CL-1, A-2 What is a Planet?)
		b.Explain the sequence of the phases of the moon			
		c.Demonstrate the revolution of the Earth around the sun and the Earth's tilt to explain the seasonal changes		· How Can You Become an · Astronaut?(A) · The Biggest Shadow of All: · A Solar Eclipse(A)	· Inferring and Predicting (CL-1, A-1, What Causes the Seasons?) · Inferring and Predicting (CL-1, A-2 What is a Planet?)
		d.Demonstrate the relative size and order from the sun of the planets in the solar system			· Inferring and Predicting (CL-1, A-2 What is a Planet?)
S4E3	Students will differentiate between the states of water and how they relate to the water cycle and weather	a.Demonstrate how water changes states from solid (ice) to liquid (water) to gas (water vapor/steam) and changes from gas to liquid to solid	· Food Chemistry · Weather Around the World	The Water Cycle(A) How to Make Your Own Slime(A)	
		b.Identify the temperatures at which water becomes a solid and at which water becomes a gas	· Weather Around the World		

		c.Investigate how clouds are formed	· Weather Around the World		
		d.Explain the water cycle (evaporation, condensation, and precipitation)	· Earth's Systems · Food Chemistry		
		e.Investigate different forms of precipitation and sky conditions (rain, snow, sleet, hail, clouds, and fog)	· Weather Around the World	The Water Cycle(A)	
S4E4	Students will analyze weather charts/maps and collect weather data to predict weather events and infer patterns and seasonal changes	a.Identify weather instruments and explain how each is used in gathering weather data and making forecasts (thermometer, rain gauge, barometer, wind vane, anemometer)	· Weather Around the World	· Look a Rainbow!(A) · Cool Beams!(A)	· Author's Purpose (CL-1, A-1, Be a Weather Scientist)
		b.Using a weather map, identify the fronts, temperature, and precipitation and use the information to interpret the weather conditions.	· Weather Around the World		
		c.User observations and records of weather conditions to predict weather patterns throughout the year	· Weather Around the World	What is Sea Ice and Why is it Shrinking?	
		d.Differentiate between weather and climate	· Powering Our Lives with Energy		

Readorium Rising Reader (GR 3-5) Alignment with Georgia State Science Standards

			· Weather Around the World		
Physical Science					
S4P1	Students will investigate the nature of light using tools such as mirrors, lenses, and prisms	a.Identify materials that are transparent, opaque, and translucent	· Deep Sea Creatures	· Look a Rainbow!(A)	
		b.Investigate the reflection of light using a mirror and a light source		· Cool Beams!(A)	· Inferring and Predicting (CL-1, A-3, Why is the Sky Blue?)
		c.Identify the physical attributes of a convex lens, a concave lens, and a prism and where each is used		· Look a Rainbow!(A)	
S4P2	Students will demonstrate how sound is produced by vibrating objects and how sound can be varied by changing the rate of vibration	a.Investigate how sound is produced	· Assistive Technology · Good Vibes - Making Waves with Sound · How We Learn · Improving Lives with · Science of Music (The)	· The Science of Movie Stunts(A) · Raise Your Voice(A)	
		b.Recognize the conditions that cause pitch to vary	· Assistive Technology · Good Vibes - Making Waves with Sound · How We Learn · Improving Lives with Assistive Technology · Science of Music (The)	· The Brain!(A) · Raise Your Voice(A)	
S4P3	Students will demonstrate the relationship between	a.Identify simple machines and explain their uses (lever, pulley, wedge,	· Amusement Park Physics · Olympic Champs: It's ·	· The Science of Movie Stunts(A) · Amusement Park	

	the application of a force and the resulting change in position and motion on an object (The use of mathematical formulas is not recommended in S4P3. Fourth grade student should carry out investigations to provide a foundation of concrete experience for the abstract understandings of physical science in upper grades)	inclined plane, screw, wheel and axle)	Not Just Luck – It's Physics!	Physics(A)	
		b.Using different size objects, observe how force affects speed and motion	· Amusement Park Physics · Olympic Champs: It's Not Just Luck – It's Physics! · Unbalanced Forces		
		c.Explain what happens to the speed or direction of an object when a greater force than the initial one is applied	· Amusement Park Physics · Olympic Champs: It's Not Just Luck – It's Physics! · Unbalanced Forces		
		d.Demonstrate the effect of gravitational force on the motion of an object	· Amusement Park Physics · Olympic Champs: It's Not Just Luck – It's Physics! · Unbalanced Forces	· Amazing Teen Scientist(A) · Black Holes(V) · Tsunami Research(V) · When Lightning Strikes(V)	
Life Science					
S4L1	Students will describe the roles of organisms and the flow of energy within an ecosystem	a.Identify the roles of producers, consumers, and decomposers in a community	· Invasive Species · Life and Death in the Wild	· Bee Bee-havior(A) · The Venus Flytrap: A · Meat-Eating Plant(A) · Interesting and Funny Animal Relationships(A · The Amazing Water Bear) · Cicada Swarm(A) · The Symbiotic Friendship of a Goby and a Shrimp(A)	

				· How Spiders Catch Prey(A) · Carnivorous Dinosaurs(A) · Herbivorous Dinosaurs(A) · Fireflies of the Ocean: Noctiluca Scintillans(A) · Make Way for Ducklings(V) · Antarctic Krill(V) · Emperor Penguins(V) · Beluga Whales(V) · Polar Bears(V) · Walruses(V) · Leaf Cutter Ants(V) · Invasion of the · Earthworms!(V) · Social Insects(V) Batty for Bats(V) Antlers, Shells, and Beaks(V) Pig Poop Fuel(V) Virtual Reality Scientists(V) Sea Turtles(V) Core on the Floor(V) What is Sea Ice and Why is it Shrinking?(V)	
		b.Demonstrate the flow of energy through a food web/food chain beginning with sunlight and including producers, consumers, and decomposers	· Birds of a Feather · Dependency of Life · Exploring Ecosystems		
		c.Predict how changes in the environment would affect a community	· Exploring Ecosystems · Invasive Species	· Mysteries of the Common Cold(A) · Understanding Asthma(A)	· Click or Clunk (CL-1, A-1, Why Save Rainforests?)

		(ecosystem) of organisms		Our Debris Filling the Ocean(V)	
		d.Predict effects on a population if some of the plants or animals in the community are scarce or if there are too many	· Life and Death in the Wild		· Click or Clunk (CL-1, A-1, Why Save Rainforests?)
S4L2	Students will identify factors that affect the survival or extinction of organisms such as adaptation, variation of behaviors (hibernation), and external features (camouflage and protection)	a.Identify external features of organisms that allow them to survive or reproduce better than organisms that do not have these features (for example: camouflage, use of hibernation, protection etc.)	· Exploring the Ocean Depths · Buzzing About Bees and Wasps · Beetlemania · Birds of a Feather · Deadliest Creatures · Dependency of Life · Exploring Ecosystems · Our Gross World · Invasive Species · Life and Death in the Wild · Secret Language of · Animals (The) · Smarter Than You Think · Spiders Stories	· Biotechnology(A) · A Sweet Treat(A) · Cancer: Cells Out of Control(A) · Weird Animal Defense Mechanisms(A) · The Venus Flytrap: A · Meat-Eating Plant(A) · Why Dandelions Are Dandy(A) · Interesting and Funny Animal Relationships(A) · Beneath the Fin(A) · How Spiders Catch Prey(A) · The Amazing Water Bear(A) · Cicada Swarm(A) · Carnivorous Dinosaurs(A) · Herbivorous Dinosaurs(A) · The Symbiotic Friendship of a Goby and a Shrimp(A) · Fireflies of the Ocean: Noctiluca Scintillans(A) · Make Way for Ducklings(V) · Monkey Business(V) · Orangutan Copycats(V)	

				· Antarctic Krill(V) · Beluga Whales(V) · Emperor Penguins(V) · Polar Bears(V) · Walruses((V) · Bird Brains(V) · Picking Your Brain(V) · Leaf Cutter Ants(V) · Invasion of the Earthworms!(V) · Social Insects(V) · Batty for Bats(V) Antlers, Shells, and Beaks(V) Pig Poop Fuel(V) Sea Turtles(V) What is Sea Ice and Why is it Shrinking?(V)	
		b.Identify factors that may have led to the extinction of some organisms	· Birds of a Feather · Deadliest Creatures · Dependency of Life · Exploring Ecosystems · Invasive Species · Life and Death in the Wild	· Biotechnology(A) Our Debris Filling the Ocean(V)	

Readorium Rising Reader (GR 3-5) Alignment with Georgia State Science Standards

5th Grade					
Habits of Mind	**Characteristics of Science**				
			Readorium Books	**Readorium Articles/Videos**	**Teacher Resource Center Classroom Strategy Lessons (CL) with Articles (A) by Standard**
S5CS1	Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works	a.Keep records of investigations and observations and do not alter the records later	· Science -What's it All About?	· Hair Time!(A)	
		b.Carefully distinguish observations from ideas and speculation about those observations	· Science -What's it All About?	· The Brain!(A) · Interesting and Funny Animal Relationships(A) · The Symbiotic Friendship of a Goby and a Shrimp(A) · Beneath the Fin(A)	
		c.Offer reasons for findings and consider reasons suggested by others	· Science -What's it All About?	· Understanding Asthma(A) · Why Dandelions Are Dandy(A) · Monkey Business(V) · Orangutan Copycats(V) · Antarctic Krill(V) · Beluga Whales(V) · Emperor Penguins(V) · Polar Bears(V)	

Readorium Rising Reader (GR 3-5) Alignment with Georgia State Science Standards

				· Walruses(V) · Babies and Learning(V) · Bird Brains(V) · Picking Your Brain(V) Sea Turtles**(V)** · Invasion of the Earthworms!(V) · Batty for Bats(V) Our Debris Filling the Ocean(V)	
		d.Take responsibility for understanding the importance of being safety conscious	· Science -What's it All About?	· How Can You Become an Astronaut?(A) · The Challenge of Gravity(A) · Black Holes(V) Earthquakes(V) Tsunami Research (V) When Lightning Strikes(V) Pig Poop Fuel(V)	
S5CS2	Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations	a.Add, subtract, multiply, and divide whole numbers mentally, on paper, and with a calculator	All Readorium's books, articles, videos, and personalized lessons delve into the multitude of topics in science that include the appropriate mathematical measurements. However, the mathematical practice that students need to experience should be found in the structured curricula of the district.		
		b.Use fractions and decimals, and translate between decimals and commonly encountered fractions-halves, thirds, fourths, fifths, tenths, and hundredths (but not sixths, sevenths, and so on)-in scientific calculations			

Readorium Rising Reader (GR 3-5) Alignment with Georgia State Science Standards

		c.Judge whether measurements and computations of quantities, such as length, area, volume, weight, or time, are reasonable answers to scientific problems by comparing them to typical values.			
S5CS3	Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities	a.Choose appropriate common materials for making simple mechanical constructions and repairing things		· Rocks Rock(A · Amazing Teen Scientist(A) · How to Make Elephant Toothpaste(A)	
		b.Measure and mix dry and liquid materials in prescribed amounts, exercising reasonable safety	All Readorium's books, articles, videos, and personalized lessons delve into the multitude of topics in science that include the appropriate mathematical measurements. However, the mathematical practice that students need to experience should be found in the structured curricula of the district.		
		c.Use computers, cameras and recording devices for capturing information	· The Computer Revolution · Exploring the Ocean Depths · Deep Space		
		d.Identify and practice accepted safety procedures in manipulating science materials and equipment		· How Can You Become an · Astronaut?(A) · The Challenge of Gravity(A)	
S5CS4	Students will use ideas of system, model, change, and	a.Observe and describe how parts influence one another in things with many parts		· Amazing Teen Scientist(A) · Hair Time!(A) · The Brain!(A)	

	scale in exploring scientific and technological matters			· Babies and Learning(V) · Making Hovercrafts(A) Antlers, Shells, and Beaks(V)	
		b.Use geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories to represent corresponding features of objects, events, and processes in the real world. Identify ways in which the representations do not match their original counterparts	All Readorium's books, articles, videos, and personalized lessons delve into the multitude of topics in science that include the appropriate mathematical measurements. However, the mathematical practice that students need to experience should be found in the structured curricula of the district.		
		c.Identify patterns of change in things-such as steady, repetitive, or irregular change-using records, tables, or graphs of measurements where appropriate.		· The Water Cycle(A) · Wonder Fabrics (A) Our Debris Filling the Ocean(V)	
		d.Identify the biggest and the smallest possible values of something		· Splash(A)	
S5CS5	Students will communicate scientific ideas and activities clearly	a.Write instructions that others can follow in carrying out a scientific procedure	· Science -What's it All About		
		b.Make sketches to aid in explaining scientific		· Amazing Teen Scientist(A) · The Biggest Shadow of	

		procedures or ideas		All: A Solar Eclipse(A) · Strange Stars(A) · Black Holes(V) · Earthquakes(V) · Tsunami Research(V) · When Lightning Strikes(V) · Pig Poop Fuel(V)	
		c.Use numerical data in describing and comparing objects and events	· Science -What's it All About	· Make Your Own Rock Candy(A)	
		d.Locate scientific information in reference books, back issues of newspapers and magazine, CD-ROMs, and computer databases	· Science -What's it All About · Computer Revolution (The) · Deep Space		
S5CS6	Students will question scientific claims and arguments effectively	a.Support statements with facts found in books, articles, and databases, and identify the sources used		· Why Are Some Hands More "Handy" (A) · Cancer: Cells Out of Control(A)	
		b.Identify when comparisons might not be fair because some conditions are different	Readorium is a web-based reading comprehension program that gives the students the opportunity to learn about what scientists do and how they do it. Performance activities and hands on opportunities should be given to the students through the district chosen science curriculum.		
The Nature of Science					
S5CS7	Students will be familiar with the character of scientific knowledge and how	a.Similar scientific investigations seldom produce exactly the same results, which may differ		· Rocks Rock(A	

	it is achieved	due to unexpected differences in whatever is being investigated, unrecognized differences in the methods or circumstances of the investigation, or observational uncertainties			
		b.Some scientific knowledge is very old and yet is still applicable today		· Splash(A) · The Water Cycle(A)	
S5CS8	Students will understand important features of the process of scientific inquiry	a.Scientific investigations may take many different forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments.	· Science: What's it All About? · Science Girls	· Cool Beams!(A) · Catching a Comet(A) · Strange Stars(A) · Our Galactic Neighborhood(A) Tsunami Research(V) When Lightning Strikes(V) · The Future of the Sun(A) · Antarctic Krill(V) · Beluga Whales(V) · Emperor Penguins(V) · Polar Bears(V) · Babies and Learning(V) · Leaf Cutter Ants(V) · Invasion of the Earthworms!(V) Sea Turtles(V) Core on the Floor(V) What is Sea Ice and Why is it Shrinking?(V)	
		b.Clear and active communication is an	· Science: What's it All About?	· How to Make Elephant Toothpaste(A)	

		essential part of doing science. It enables scientists to inform others about their work, expose their ideas to criticism by other scientists, and stay informed about scientific discoveries around the world			
		c.Scientists use technology to increase their power to observe things and to measure and compare things accurately	· Science: What's it All About? · Science Girls · Smarter Than You Think · Improving Lives with Assistive Technology · On the Move with Transportation Technology · The Computer Revolution	· Matter Matters!(A) · Our Own Star, the Sun(A) · The Future of the Sun(A) · Catching a Comet(A) · Treasures in the Sky(A) · Strange Stars(A) · Our Galactic Neighborhood(A) · Black Holes(V) · Earthquakes(V) · Robobees (V) · Robotic Arms(V) · Tsunami Research(V) · When Lightning Strikes(V)	Questioning (CL-1, A-3 Sloths)
		d.Science involves many different kinds of work and engages men and women of all ages and backgrounds	· Science: What's it All About? · Science Girls	· How Can You Become an Astronaut?(A) · Catching a Comet(A) · The SpelBots (V)	
Earth Science					
S5E1	Students will identify surface features of the Earth caused by constructive and	a.Identify surface features caused by constructive processes *Deposition (deltas, sand dunes, etc.)	· Changing Face of Earth · Natural Hazards that Shape the Earth	· Rocks Rock(A) · A River of Ice(A) Our Debris Filling the Ocean(V)	

	destructive processes	*Earthquakes *Volcanoes *Faults			
		b.Identify and find examples of surface features caused by destructive processes. *Erosions (water-rivers and oceans, wind) *Weathering *Impact of organisms *Earthquake *Volcano	· Changing Face of Earth · Exploring Ecosystems · Natural Hazards that Shape the Earth · Invasive Species	· A Trip to Mars(A) · Treasures in the Sky(A) Tsunami Research(V) When Lightning Strikes(V) Core on the Floor(V) What is Sea Ice and Why is it Shrinking?(V)	Author's Purpose (CL-1-A3, Tornado)
		c.Relate the role of technology and human intervention in the control of constructive and destructive processes. Examples include, but are not limited to *Seismological studies *Flood control, (dams, levees, storm drain management, etc.) *Beach reclamation (Georgia coastal islands)	· Powering Our Lives with Energy		
Physical Science					
S5P1.	Students will verify that an object is the sum of its parts	a.Demonstrate that the mass of an object is equal to the sum of its parts by manipulating and measuring different objects made of various parts	Readorium is a web-based reading comprehension program that gives the students the opportunity to learn about what scientists do and how they do it. Performance activities and hands on opportunities should be given to the students through the district chosen science curriculum.		
		b.Investigate how common	· Solving Crimes with		

		items have parts that are too small to be seen without magnification	Chemistry		
S5P2	Students will explain the difference between a physical change and a chemical change	a.Investigate physical changes by separating mixtures and manipulating (cutting, tearing, folding) paper to demonstrate examples of physical change	· Making Movie Magic	· Rocks Rock(A · A River of Ice(A) · Crime Scene Science(A) · Earthquakes(V) When Lightning Strikes(V)	
		b.Recognize that the changes in state of water (water vapor/steam, liquid, ice) are due to temperature differences and are examples of physical change	· Weather Around the World	What is Sea Ice and Why is it Shrinking?(V)	
		c.Investigate the properties of a substance before, during, and after a chemical reaction to find evidence of change	· Food Chemistry · Making Movie Magic		Inferring and Predicting (CL-2, A-3, Cafeteria Chemistry)
S5P3	Students will investigate the electricity, magnetism, and their relationship	a.Investigate static electricity	Readorium is a web-based reading comprehension program that gives the students the opportunity to learn about what scientists do and how they do it. Performance activities and hands on opportunities should be given to the students through the district chosen science curriculum.		
		b.Determine the necessary components for completing and electric circuit			
		c.Investigate common materials to determine if			

		they are insulators or conductors of electricity			
		d.Compare a bar magnet to an electromagnet			
Life Science					
S5L1	Students will classify organisms into groups and relate how they determined the groups with how and why scientists use classification	a.Demonstrate how animals are sorted into groups (vertebrate and invertebrate) and how vertebrates are sorted into groups (fish, amphibian, reptile, bird, and mammal)	· Birds of a Feather	· Why Are Some Hands· · More "Handy" (A) · Bee Bee-havior(A) · Tigers and Lions!(A) · The Venus Flytrap: A · Meat-Eating Plant(A) · Interesting and Funny Animal Relationships(A) · Beneath the Fin(A) · Carnivorous Dinosaurs(A) · Cicada Swarm(A) · Monkey Business(V) · Antarctic Krill(V) Core on the Floor(V)	
		b.Demonstrate how plants are sorted into groups	· Weird and Wonderful Plants		
S5L2	Students will recognize that offspring can resemble parents in inherited traits and learned behaviors	a.Compare and contrast the characteristics of learned behaviors and of inherited traits	· Inheritance: It's All in the Genes · Smarter Than You Think · Just by a Whisker (V)		
		b.Discuss what a gene is and the role genes play in the transfer of traits	· Technology Changes Medicine · Inheritance: It's All in the	· Raise Your Voice(A)	

		(Be sensitive to this topic since biological parents may be unavailable)	Genes		
S5L3	Students will diagram and label parts of various cells (plant, animal, single-celled, multi-celled)	a.Use magnifiers such as microscopes or hand lenses to observe cells and their structure	· Solving Crimes with Forensics · Technology Changes Medicine	· Crime Scene Science(A) · Hair Time!(A) · Cancer: Cells Out of Control(A) · Science Pirates - Agar Song (V)	
		b.Identify parts of a plant cell (membrane, wall, cytoplasm, nucleus, chloroplasts) and of an animal cell (membrane, cytoplasm, and nucleus) and determine the function of the parts.	· Inheritance: It's All in the Genes		
		c.Explain how cells in multi-celled organisms are similar and different in structure and function to single-celled organisms		· Hair Time!(A) · Science Pirates - Agar Song (V) · Science Pirates - Bacteria (V)	
S5L4	Students will relate how microorganisms benefit or harm larger organisms	a.Identify beneficial microorganisms and explain why they are beneficial		· Crime Scene Science(A) · Science Pirates - Agar Song (V) · Science Pirates - Bacteria (V)	· Text Organization (CL-2, A-1 Inside Your Body)
		b.Identify harmful microorganisms and explain why they are harmful	· Technology Changes Medicine · Life and Death in the Wild	· Bee Bee-havior(A) · Science Pirates - Wash Your Hands	· Text Organization (CL-2, A-1 Inside Your Body)

Readorium Rising Reader (GR 3-5) Alignment with Georgia State Science Standards

			· Invasive Species · Our Gross World		