Earth and Space-1st Semester
Curriculum Map
Missouri Learning Standards

Unit 1: Intro to Earth and Space	Unit 2: Systems of Matter & Energy	Unit 3: Natural Resources	Unit 4: Earth in the Solar System	Unit 5: Space
1st Quarter	1st Quarter	1st Quarter	2nd Quarter	2nd Quarter
Priority Standards	**Priority Standards**	**Priority Standards**	**Priority Standards**	**Priority Standards**
9-12.ESS3.D.2 Predict how human activity affects the relationships between Earth systems in both positive and negative ways.	9-12.ESS2.A.2 Analyze geoscientific data to make the claim that one change to Earth's surface can create changes to other Earth systems.	9-12.ESS3.A.1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.	9-12.ESS1.B.1 Use Kepler's Law to predict the motion of orbiting objects in the solar system.	9-12.ESS1.A.1 Develop a model based on evidence to illustrate the life span of the Sun and the role of nuclear fusion in the Sun's core to release energy in the form of radiation.
	9-12.ESS2.A.3 Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.	9-12.ESS3.A.2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on economic, social, and environmental cost-benefit ratios.	9-12.ESS2.A.4 Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.	9-12.ESS1.A.2 Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.
	9-12.ESS2.A.4 Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.	9-12.ESS3.C.1 Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.	9-12.ESS1.C.2 Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.	9-12.ESS1.A.3 Communicate scientific ideas about the way stars, over their life cycle, produce elements.
	9-12.ESS2.C.1 Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.	9-12.ESS3.C.2 Evaluate or refine a technological solution that reduces impacts of human activities on natural systems in order to restore stability and or biodiversity of the ecosystem as well as prevent their reoccurrences		
	9-12.ESS2.D.1 Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.	9-12.ETS1.A.1 Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.		
Essential Questions	**Essential Questions**	**Essential Questions**	**Essential Questions**	**Essential Questions**
How can we investigate the world around us to make more sense of it?	What benefits are to be gained from studying and exploring the world in which we live?	How do humans depend on Earth's resources? How do humans change teh planet?	What is the Earth's place in the universe, and how can this inform the way we view ourselves and our lives?	What is the universe, and what goes on in the stars? What is the universe, and what is Earth's

	How does curiosity about the world around us impact and guide scientific inquiry?		Why is it important to understand the Earth's systems?	place in it?
I Can Statements	**I Can Statements**	**I Can Statements**	**I Can Statements**	**I Can Statements**
9-12.ESS3.D.2 • I can predict how human activity affects the relationship between Earth systems in positive ways. • I can predict how human activity affects the relationship between Earth systems in negative ways.	9-12.ESS2.A.2 • I can analyze geoscientific data. 9-12.ESS2.A.3 • I can develop a model of the Earth's interior. • I can develop a model to describe the cycling of matter by thermal convection. 9-12.ESS2.A.4 • I can use a model to describe the flow of energy into and out of Earth's systems. 9-12.ESS2.C.1 • I can plan an investigation of the properties of water. • I can conduct an investigation of the properties of water. 9-12.ESS2.D.1 • I can develop a quantitative model to describe the cycling of carbon among the hydrosphere. • I can develop a quantitative model to describe the cycling of carbon among the atmosphere. • I can develop a quantitative model to describe the cycling of carbon among the geosphere. • I can develop a quantitative model to describe the cycling of carbon among the biosphere.	9-12.ESS3.A.1 • I can construct an explanation for how the availability of natural resources have influenced human activity. • I can construct an explanation for how the occurrence of natural hazards have influenced human activity. • I can construct an explanation for how changes in climate have influenced human activity. 9-12.ESS3.A.2 • I can evaluate competing design solutions for developing energy. • I can evaluate competing design solutions for managing energy. • I can evaluate competing design solutions for utilizing energy. • I can evaluate competing design solutions for mineral resources.. 9-12.ESS3.C.1 • I can create a computational simulation to illustrate the relationships among natural resources and the human populations. 9-12.ESS3.C.2 • I can evaluate a technological solution that reduces impacts of human activities. • I can refine a technological solution that reduces impacts of human activities. 9-12.ETS1.A.1 • I can analyze a major global challenge to specify qualitative and quantitative criteria for a solution for societal needs.	9-12.ESS1.B.1 • I can use Kepler's Law to predict the motion of orbiting objects. 9-12.ESS2.A.4 • I can use a model to describe the variations in the flow of energy into and out of the Earth's systems. 9-12.ESS1.C.2 • I can apply scientific reasoning from ancient Earth materials to construct an account of Earth's formation and early history. • I can apply scientific reasoning from meteorites to construct an account of Earth's formation and early history. • I can apply scientific reasoning from other planetary surfaces to construct an account of Earth's formation and early history.	9-12.ESS1.A.1 • I can develop a model based on evidence to illustrate the life span of the Sun. • I can develop a model based on evidence to illustrate the role of nuclear fusion in the Sun's core to release energy in the form of radiation. 9-12.ESS1.A.2 • I can construct an explanation of the Big Bang theory based on astronomical evidence of light spectra. • I can construct an explanation of the Big Bang theory based on astronomical evidence of motion of distant galaxies. • I can construct an explanation of the Big Bang theory based on astronomical evidence of the composition of matter in the universe. 9-12.ESS1.A.3 • I can communicate scientific ideas about the way stars produce elements.

Earth and Space-2nd Semester
Curriculum Map
Missouri Learning Standards

Unit 6: Plate Tectonics	Unit 7: Earth's Changing Surface	Unit 8: Earth's Water	Unit 9: The Atmosphere	Unit 10: Exploring Earth's History	Unit 11: Human Activity & Earth
3rd Quarter	3rd Quarter	3rd Quarter	4th Quarter	4th Quarter	4th Quarter
Priority Standards	Priority Standards	Priority Standards	Priority Standards	Priority Standards	Priority Standards
9-12.ESS1.C.1 Evaluate evidence of the past and current movements of continental and oceanic crust, the theory of plate tectonics, and relative densities of oceanic and continental rocks to explain why continental rocks are generally much older than rocks of the ocean floor.	9-12 ESS2.A.1 Develop a model to illustrate how Earth's interior and surface processes (constructive and destructive) operate at different spatial and temporal scales to form continental and ocean-floor features.	9-12.ESS2.C.1 Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.	9-12.ESS3.D.1 Analyze geoscientific data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.	9-12.ESS2.D.1 Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.	9-12.ESS2.E.1 Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.
9-12 ESS2.A.1 Develop a model to illustrate how Earth's interior and surface processes (constructive and destructive) operate at different spatial and temporal scales to form continental and ocean-floor features.	9-12.ESS2.A.2 Analyze geoscientific data to make the claim that one change to Earth's surface can create changes to other Earth systems.	9-12.ESS3.A.1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.	9-12.ESS2.A.2 Analyze geoscientific data to make the claim that one change to Earth's surface can create changes to other Earth systems.	9-12.ESS3.D.1 Analyze geoscientific data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.	9-12.ESS3.C.1 Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.
9-12.ESS2.A.3 Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.	9-12.ESS2.C.1 Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.	9-12.ESS3.C.1 Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.	9-12.ESS2.A.4 Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate		9-12.ESS3.C.2 Evaluate or refine a technological solution that reduces impacts of human activities on natural systems in order to restore stability and or biodiversity of the ecosystem as well as prevent their reoccurrences.
9-12.ESS3.A.1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.		9-12.ESS3.C.2 Evaluate or refine a technological solution that reduces impacts of human activities on natural systems in order to restore stability and or biodiversity of the ecosystem as well as prevent their reoccurrences	9-12.ESS3.D.2 Predict how human activity affects the relationships between Earth systems in both positive and negative ways.		9-12.ESS2.D.1 Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.
					9-12.ESS3.A.1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
					9-12.ESS3.D.2 Predict how human

					activity affects the relationships between Earth systems in both positive and negative ways.
Essential Questions	**Essential Questions**	**Essential Questions**	**Essential Questions**	**Essential Questions**	**Essential Questions**
How do people reconstruct and date events in Earth's planetary history? How do Earth's major systems interact?	How do Earth's major systems interact? How and why is Earth constantly changing?	How do the properties and movements of water shape Earth's surface and affect its systems? How do humans depend on Earth's resources?	How does the sun affect weather patterns on Earth? How is climate changing over time, and to what extent are humans impacting the change?	What regulates weather and climate?	How do living organisms alter Earth's processes and structures? How do the Earth's surface processes and human activities affect each other?
I Can Statements	**I Can Statements**	**I Can Statements**	**I Can Statements**	**I Can Statements**	**I Can Statements**
9-12.ESS1.C.1 • I can evaluate evidence of past and current movements of continental and oceanic crust. • I can evaluate evidence of past and current theory of plate tectonics. • I can evaluate evidence of past and current relative densities of oceanic and continental rocks. • I can explain why continental rocks are generally much older than rock on the ocean floor. 9-12 ESS2.A.1 • I can develop a model to illustrate how Earth's interior and surface processes operate at different spatial scales. • I can develop a model to illustrate how Earth's interior and surface processes operate at different temporal scales. . 9-12.ESS2.A.3 • I can develop a model of Earth's interior. • I can describe the cycling of matter by thermal convection. 9-12.ESS2.A.3	9-12 ESS2.A.1 • I can develop a model to illustrate how Earth's interior and surface processes operate at different spatial scales. • I can develop a model to illustrate how Earth's interior and surface processes operate at different temporal scales. 9-12.ESS2.A.2 • I can analyze geoscientific data. 9-12.ESS2.C.1 • I can plan an investigation of the properties of water. • I can conduct an investigation of the properties of water.	9-12.ESS2.C.1 • I can plan an investigation of the properties of water and its effects on Earth materials. • I can conduct an investigation of the properties of water and its effects on Earth materials. 9-12.ESS3.A.1 • I can construct an explanation for how the availability of natural resources have influenced human activity. • I can construct an explanation for how the occurrence of natural hazards have influenced human activity. • I can construct an explanation for how changes in climate have influenced human activity. 9-12.ESS3.C.1 • I can create a computational simulation to illustrate the relationships among natural resources and the human populations. 9-12.ESS3.C.2 • I can evaluate a technological solution that reduces impacts of	9-12.ESS3.D.1 • I can analyze geoscientific data from global climate models. • I can make an evidence-based forecast of the current rate of global or regional climate change. 9-12.ESS2.A.2 • I can analyze geoscientific data. 9-12.ESS2.A.4 • I can use a model to describe the flow of energy into and out of Earth's systems. 9-12.ESS3.D.2 • I can predict how human activity affects the relationships between Earth systems in positive ways. • I can predict how human activity affects the relationships between Earth systems in negative ways.	9-12.ESS2.D.1 • I can develop a quantitative model to describe the cycling of carbon among the hydrosphere. • I can develop a quantitative model to describe the cycling of carbon among the atmosphere. • I can develop a quantitative model to describe the cycling of carbon among the geosphere. • I can develop a quantitative model to describe the cycling of carbon among the biosphere. 9-12.ESS3.D.1 • I can analyze geoscientific data from global climate models. • I can make an evidence-based forecast of the current rate of global or regional climate change.	9-12.ESS2.E.1 • I can create a computational simulation to illustrate the relationship among management of natural resources, the sustainability of human populations and biodiversity. 9-12.ESS3.C.1 • I can create a computational simulation to illustrate the relationships among natural resources and the human populations. 9-12.ESS3.C.2 • I can evaluate a technological solution that reduces impacts of human activities. • I can refine a technological solution that reduces impacts of human activities. 9-12.ESS2.D.1 • I can develop a quantitative model to describe the cycling of carbon among the hydrosphere. • I can develop a quantitative model to describe the cycling of carbon among the atmosphere. • I can develop a quantitative model to

• I can develop a model of the Earth's interior. • I can develop a model to describe the cycling of matter by thermal convection. 9-12.ESS3.A.1 • I can construct an explanation for how the availability of natural resources have influenced human activity. • I can construct an explanation for how the occurrence of natural hazards have influenced human activity. • I can construct an explanation for how changes in climate have influenced human activity.		human activities. • I can refine a technological solution that reduces impacts of human activities.			describe the cycling of carbon among the geosphere. • I can develop a quantitative model to describe the cycling of carbon among the biosphere. 9-12.ESS3.D.2