Danville Area School District
Course Overview and Scope and Sequence

Course Title: Earth and Space Science
Content Area: Science
Grade Level: 6th Grade
Date Developed: Summer 2023 using the PA Curriculum Framework and STEELS Standards

COURSE OVERVIEW: Earth and Space Science focuses on processes that operate on Earth and its place in the solar system and galaxy. Throughout the course students will study geological structures, the role of water in Earth's processes, weather and climate, natural resources and hazards, and human impacts on the Earth. Students will also explore the changes observed as a result of energy flowing and matter cycling between interconnected systems.
ANCHOR STANDARDS: 1. The Universe and It's Stars 2. Earth and The Solar System 3. The History of Planet Earth 4. Earth Materials and Systems 5. Plate Tectonics and Large Scale System Interactions 6. The Roles of Water in Earth's Surface Processes 7. Weather and Climate 8. Natural Resources 9. Natural Hazards 10. Human Impact on Earth Systems
KEY COURSE TEXT AND MATERIALS: OpenSciEd, Teacher Created Materials, Labs and Supplies
KEY ASSESSMENTS: Diagnostic: CDT, 8th Grade PSSA

Formative: Labs and activities, simulations and model construction, Gizmo, bell ringers, exit tickets, CER and class discussions
Summative: Projects, Unit Test

SCOPE AND SEQUENCE					
Unit	PRIORITY STANDARDS	SUPPORTING STANDARDS	ASSESSMENT	MATERIALS	TIMEFRAME
Plate Tectonics and and Large Scale System Interactions	3.3.6-8.G Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate motions.	ESS1.C ESS2.B 3.3.4.C ELA: CC.3.5.6-8.A CC.3.5.6-8.G CC.3.5.6-8.I Math: MP.2 CC.2.2.6.B.2 CC.2.2.7.B.3	Interactive Notebook, CER, Response Sheet, Labs,Projects, Quizzes and Tests	OpenSciEd teacher resources and additional content is teacher created. In addition lab/project supplies, materials are posted in Google Classroom.	25 Days (5 Weeks)
The History of Planet Earth	3.3.6-8.D 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.	ESS1.C 3.3.4.A ELA: CC.3.5.6-8.A CC.3.6.6-8.B Math: CC.2.2.7.B.3	Interactive Notebook, CER, Response Sheet	OpenSciEd teacher resources and additional content is teacher created. In addition lab/project supplies, materials are posted in Google Classroom.	Included with Plate Tectonics and Large Scale System Interactions
Earth Materials and	3.3.6-8.E Construct	ESS2.A	Interactive	OpenSciEd teacher	Included with Plate

Systems	an explanation for how geoscience processes have changed Earth's surface at varying time and spatial scales. 3.3.6-8.F Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.	ESS2.C 3.3.4.B 3.3.5.C ELA: CC.3.5.6-8.A CC.3.6.6-8.B CC.1.5.8.E Math: MP.2 CC.2.2.6.B.2	Notebook, CER, Response Sheet	resources and additional content is teacher created. In addition lab/project supplies, materials are posted in Google Classroom.	Tectonics and Large Scale System Interactions
The Universe and Its Stars	3.3.6-8.A 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. 3.3.6-8.B Develop and use a model to describe the role of gravity in the motion within galaxies and the solar system.	ESS1.A ESS1.B 3.3.5.A ELA: CC.1.5.8E Math: MP.4 CC.2.1.6.D.1 CC.2.1.7.D.1 CC.2.2.7.B.3	Interactive Notebook, CER, Response Sheet	OpenSciEd teacher resources and additional content is teacher created. In addition lab/project supplies, materials are posted in Google Classroom.	31 days (6 weeks)
Earth and the Solar System	3.3.6-8.C Analyze and interpret data	ESS1.B	Interactive Notebook, CER,	OpenSciEd teacher resources and	Included with The Universe and Its

	to determine scale properties of objects in the solar system.	3.3.5.B ELA: CC.3.5.6-8.A CC.3.5.6-8.G Math: MP.2 CC.2.4.6.B.1 CC.2.4.7.B.3	Response Sheet	additional content is teacher created. In addition lab/project supplies, materials are posted in Google Classroom	Stars
The Roles of Water in Earth's Surface Processes	3.3.6-8.H Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. 3.3.6-8.I 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 climate. 3.4.6-8.C Develop a model to describe how watersheds and wetlands	ESS2.C 3.3.5.D ELA: CC.3.5.6-8.G Math: MP.2 CC.2.4.7.B.3 CC.2.4.7.B.1	Interactive Notebook, CER, Response Sheet	OpenSciEd teacher resources and additional content is teacher created. In addition lab/project supplies, materials are posted in Google Classroom.	42 days (7 weeks)

	function as systems, including the roles and functions they serve.				
Weather and Climate	3.3.6-8.J Collect data to provide evidence for how the motion and complex interactions of air masses result in changes in weather conditions. 3.3.6-8.O Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century. 3.4.6-8.E Collect, analyze, and interpret environmental data to describe a local environment.	ESS2.C ESS2.C ESS3.D 3.3.3.A 3.3.2.B ELA: CC.3.5.6-8.A CC.3.5.6-8.I CC.3.5.6-8.G Math: MP.2 CC.2.1.6.E.4 CC.2.4.7.B.3 CC.2.4.7.B.1 CC.2.2.6.B.2	Interactive Notebook, CER, Response Sheet	OpenSciEd teacher resources and additional content is teacher created. In addition lab/project supplies, materials are posted in Google Classroom.	Included with The Role of Water in Earth's Surface Processes
Natural Hazards	3.3.6-8.L Analyze and interpret data on natural hazards to forecast future	ESS3.B 3.3.4.E	Interactive Notebook, CER, Response Sheet	OpenSciEd teacher resources and additional content is teacher created. In	21 Days (3 weeks)

	catastrophic events and inform the development of technologies to mitigate their effects.	ELA: CC.3.5.6-8.A CC3.5.6-8.G Math: CC.2.2.6.B.2 CC.2.2.7.B.3		addition lab/project supplies, materials are posted in Google Classroom.	
Natural Resources	3.3.6-8.K 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. 3.4.6-8.A Develop a model to describe how agricultural and food systems function, including the sustainable use of natural resources and the production, processing, and management of food, fiber, and energy. 3.4.6-8.B Analyze	ESS3.A 3.3.4.D ELA: CC.3.5.6-8.A CC.3.5.6-8.B CC.3.5.6-8.H CC.3.5.6-8.G CC.3.5.6-8.F Math: MP.2 CC.2.2.6.B.2 CC.2.2.7.B.3	Interactive Notebook, CER, Response Sheet	OpenSciEd teacher resources and additional content is teacher created. In addition lab/project supplies, materials are posted in Google Classroom.	33 Days (7 weeks)

	and interpret data about how different societies (economic and social systems) and cultures use and manage natural resources differently.				
Human Impact on Earth Systems	3.3.6-8.M Apply scientific principles to design a method for monitoring and minimizing human impact on the environment. 3.3.6-8.N Construct an argument supported by evidence for how increases in human population and per capita consumption of natural resources impact Earth's Systems. 3.4.6-8.A Develop a model to describe how agricultural and food systems function, including the sustainable use of natural resources and the production,	ESS3.B ESS3.C 3.3.5.E 3.3.5.F ELA: CC.3.6.6-8.F CC.3.5.6-8.A CC.3.6.6-8.A CC.3.6.6-8.H CC.3.5.6-8.G CC.3.5.6-8.I CC.3.6.6-8.E Math: MP.2 CC.2.1.6.D.1 CC.2.1.7.D.1 CC.2.4.6.B.1 CC.2.4.7.B.3 CC.2.4.7.B.1	Interactive Notebook, CER, Response Sheet	OpenSciEd teacher resources and additional content is teacher created. In addition lab/project supplies, materials are posted in Google Classroom.	Included with Natural Resources

	processing, and management of food, fiber, and energy. 3.4.6-8.B Analyze and interpret data about how different societies (economic and social systems) and cultures use and manage natural resources differently. 3.4.6-8.D Gather, read, and synthesize information for multiple sources to investigate how Pennsylvania environmental issues affect Pennsylvania's human and natural systems. 3.4.6-8.F Obtain and communicate information on how integrated pest management could improve indoor and outdoor environments.				

	3.4.6-8.G Obtain and communicate information to describe how best resource management practices and environmental laws are designed to achieve environmental sustainability. 3.4.6-8.H Design a solution to an environmental issue in which individuals and societies can engage as stewards of the environment.				