

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
1: Prologue	September	<ul style="list-style-type: none"> - Scientific Explanations - Graphing, Data Analysis - Math Skills - Feedback Loops - Earth Systems - Latitude and Longitude 	<ul style="list-style-type: none"> - Density - Rate of Change - Latitude and Longitude - Layers of the Earth 	<p>AI-A.REI.1a Explain each step when solving a linear or quadratic equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution.</p> <p>Construct a viable argument to justify a solution method.</p> <p>Develop and use a model to describe how unequal heating and rotation of Earth cause patterns of</p>	<ul style="list-style-type: none"> - Linear equation manipulation - Locating positions - Analyzing graphs and data tables 	<p>Scientists support their claims with evidence from observations</p> <p>Evidence can come in many different forms</p>	<p>Test 1</p> <p>Lab - Sun Investigation</p> <p>Lab - Mapping the Earth</p> <p>Lab - Planet Earth Investigation</p>

Educating Each Student Today for Endless Possibilities Tomorrow



Mount Pleasant Central School District

Earth and Space Science

We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
				atmospheric and oceanic circulation that determine regional climates.			
2a-b: Universe and Orbits	October	<ul style="list-style-type: none"> - Big Bang Evidence - Electromagnetic Spectrum - Spectral Lines - Solar System - Stellar Life Cycles - Nuclear Fusion and Nucleosynthesis - HR Diagram - Geocentric vs Heliocentric Models - Kepler's Laws 	<ul style="list-style-type: none"> - Big Bang Theory - Emission Spectral Lines Primordial Radiation 	<p>HS-ESS1-1 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 that eventually reaches Earth in the form of radiation</p> <p>HS-ESS1-2 Construct an explanation of the Big Bang theory based on astronomical evidence of light</p>	<ul style="list-style-type: none"> - Reading models - Developing models - Analyzing graphs and data tables - Constructing scientific explanations 	<p>The universe can be understood using the properties of light coming from distant stars and galaxies</p> <p>Depending on mass, different stars undergo different life cycles and create different elements</p> <p>All planets orbit in ellipses around the sun according to</p>	<p>Test 2a-2b</p> <p>Lab - Star Light Spectra</p> <p>Lab - Life Cycles of Stars Model</p> <p>State Lab - Unearthing Mars</p>

Educating Each Student Today for Endless Possibilities Tomorrow

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
				spectra, motion of distant galaxies, and composition of matter in the universe. HS-ESS1-3 Communicate scientific ideas about the way stars, over their life cycle, produce elements. HS-ESS1-4 Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.		Kepler's Laws of Planetary Motion	
2c-d: Earth Sun	November	- Earth's Tilt - Seasons	- Tides - Eclipses	HS-ESS1-4 Use mathematical or	- Reading models - Developing models	As earth orbits the sun, the tilt of the	Exam 2a-2d Lab - The Moon

Educating Each Student Today for Endless Possibilities Tomorrow

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
and Moon		<ul style="list-style-type: none"> - Insolation - Sun Paths - Earth's Rotation - Moon Phases - Tides - Eclipses 	<ul style="list-style-type: none"> - Moon phases 	<p>computational representations to predict the motion of orbiting objects in the solar system.</p> <p>HS-ESS1-7 Construct an explanation using evidence to support the claim that the phases of the moon, eclipses, tides and seasons change cyclically.</p>	<ul style="list-style-type: none"> - Analyzing graphs and data tables - Constructing scientific explanations 	<p>earth changes direction relative to the sun, causing seasons</p> <p>Moon phases are caused by light from the sun reflecting off of the moon, and changes in perspective from the Earth</p>	Lab - Sun, Moon Earth Relationship
3: Energy in Earth's Spheres	December	<ul style="list-style-type: none"> - Light Matter Interactions - Energy Transference -Forms of Energy - Temperature - Heat and Cooling Curve of Water 	<ul style="list-style-type: none"> - Electromagnetic Spectrum - Energy Transfers - Atmosphere 	<p>HS-ESS2-2 Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to Earth's</p>	<ul style="list-style-type: none"> -Analyze models - Analyzing graphs and data tables - Constructing scientific explanations 	<p>Energy from the sun fuels a wide variety of processes occurring in all of earth's systems (hydrosphere, atmosphere, etc)</p>	Exam 3 Lab - Biosphere 2 Research Experiment

Educating Each Student Today for Endless Possibilities Tomorrow

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
				systems.			
4: Meteorology	January	<ul style="list-style-type: none"> - Air Temperature - Moisture and Humidity - Air Pressure - Winds - Clouds - Planetary Wind Belts - Air Masses and Fronts - Storms - Weather Models 	<ul style="list-style-type: none"> - Characteristics of Air masses - Characteristics of fronts - Natural disasters 	HS-ESS2-8 Evaluate data and communicate information to explain how the movement and interactions of air masses result in changes in weather conditions	<ul style="list-style-type: none"> -Analyze models - Analyzing graphs and data tables - Constructing scientific explanations 	Uneven heating of Earth's surface drives the movement and interaction of air masses, which creates weather patterns and phenomena	Exam 4 Midterm State Lab - The Sky is the Limit
5: Climate	February	<ul style="list-style-type: none"> - Temperature and Climate - Humidity and Climate - Milankovitch Cycles 	<ul style="list-style-type: none"> - Continental climate - Marine climate - El and La Nina 	HS-ESS2-2 Analyze geoscience data to make the claim that one change to Earth's surface can create	<ul style="list-style-type: none"> -Analyze models - Analyzing graphs and data tables - Constructing scientific explanations 	Students will analyze geoscience and climate model data to forecast the rate of climate change and its	Exam 5 Lab - Evidence-Based Forecast of the Current Rate of Climate Change

Educating Each Student Today for Endless Possibilities Tomorrow

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
		<ul style="list-style-type: none"> - Ocean Composition/Circulation - Carbon Cycles - Human Impacts on Environment - Groundwater - Infiltration vs Runoff - Porosity 		<p>feedbacks that cause changes to Earth's systems</p> <p>HS-ESS2-4 Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.</p> <p>HS-ESS2-6 Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere</p> <p>HS-ESS2-7 Construct an argument based on</p>		<p>impacts, using the results to make evidence-based claims about future Earth systems</p>	

Educating Each Student Today for Endless Possibilities Tomorrow

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
				evidence about the coevolution of Earth's systems and life on Earth. HS-ESS3-1 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. HS-ESS3-5 Create a computational simulation to illustrate the relationships among management of natural resources,			

Educating Each Student Today for Endless Possibilities Tomorrow

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
				the sustainability of human populations, and biodiversity. HS-ESS3-6 Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.			
6: Surface Processes	March	<ul style="list-style-type: none"> - Physical and Chemical Weathering - Factors affecting Weathering - Products of Weathering - Erosion from 	<ul style="list-style-type: none"> - Weathering - Erosion - Deposition 	HS-ESS2-5 Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.	<ul style="list-style-type: none"> -Analyze models - Analyzing graphs and data tables - Constructing scientific explanations 	Landscapes on Earth are constantly changing as processes break down rock, transport sediment and deposit it elsewhere	Exam 6 Lab - Monument Mayhem Lab - The Ripple Effect

Educating Each Student Today for Endless Possibilities Tomorrow

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
		<ul style="list-style-type: none"> Running Water - Stream Characteristics - Glacier Erosion - Gravity, Wind and Wave Erosion -Deposition from Running Water - Glacier Deposition - Deposition from Gravity, Wind and Waves - Sedimentary Rocks 		HS-ESS2-1 Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.			
7: Minerals and Energy Natural Resources	April	<ul style="list-style-type: none"> - Mineral Properties - Energy and Mineral Resources 	<ul style="list-style-type: none"> - Luster - Cleavage - Fracture 	HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes	<ul style="list-style-type: none"> - Identify minerals and rocks based off physicals and/or chemical properties - Analyze models - Analyzing graphs and data tables 	Humans need resources from the earth to sustain our daily lives, but collecting those resources leads to impacts that must be	<ul style="list-style-type: none"> Exam 7 Lab - Mineral Identification Lab - Rock Identification

Educating Each Student Today for Endless Possibilities Tomorrow

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
				in climate have influenced human activity. HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios. HS-ESS3-3 Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations,	- Constructing scientific explanations	addressed	

Educating Each Student Today for Endless Possibilities Tomorrow

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
				and biodiversity. HS-ESS3-4 Evaluate or refine a technological solution that reduces impacts of human activities on natural systems HS-ESS3-6 Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity			
8: Dynamic Crust	May	- Folding, Faulting and Tilting - Plate Tectonics	- Convergent - Divergent - Transform	HS-ESS1-5 Evaluate evidence of the past and current	-Analyze models - Analyzing graphs and data tables	The motion of the Earth's tectonic plates leads to a wide variety	Exam 8 Lab - What is going on here?

Educating Each Student Today for Endless Possibilities Tomorrow

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
		<ul style="list-style-type: none"> - Convergent, Divergent and Transform Boundaries - Earthquakes and Tsunamis - Igneous Rock Formation - Bowen Reaction Series (Composition of Igneous Rocks) - Metamorphic Rock Formation 		<p>movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.</p> <p>HS-ESS2-1 Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features</p> <p>HS-ESS2-3 Develop a model based on evidence of Earth's interior to describe the</p>	<ul style="list-style-type: none"> - Constructing scientific explanations 	<p>of geologic processes and surface features that have shaped our world</p>	<p>Lab - Plate Tectonics</p>

Educating Each Student Today for Endless Possibilities Tomorrow

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
				cycling of matter by thermal convection			
9: History of Earth	June	<ul style="list-style-type: none"> - Relative Dating of Rock Sequences - Relative Dating by Rock Correlation and Index Fossils -Geologic Time - Absolute Dating - Landscape Regions 	<ul style="list-style-type: none"> - Radioactive decay - Unconformity - Index fossil 	<p>HS-ESS1-6 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.</p> <p>HS-ESS2-1 Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and</p>	<ul style="list-style-type: none"> -Analyze models - Analyzing graphs and data tables - Constructing scientific explanations 	Using evidence from rocks, namely their sequencing, fossils and radiometric dating, we can learn what the earth was like throughout its 4.5 billion year existence	Exam 9 Lab - Sequence of Events

Educating Each Student Today for Endless Possibilities Tomorrow

Mount Pleasant Central School District

Earth and Space Science



We believe that all students should have a strong understanding of science and its application to critically assess information in the modern world and make decisions to solve real-world problems.

Regents Earth and Space Sciences course covers the study of Earth's systems, including its atmosphere, geology, oceans, and the broader cosmos, focussing on topics such as the solar system, weather patterns, climate change, Earth's history, and human impact on the environment. Students are expected to participate in laboratory activities, field studies, and data analysis to gain practical understanding of scientific concepts. The course culminates with a standardized New York State Regents examination that assesses students' comprehension of the material.

Unit Title	Month	Content	Vocabulary	Standards	Skills	Big Ideas	Assessments
				ocean-floor features.			