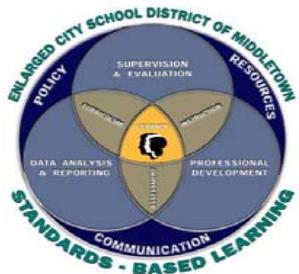




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STANDARD	PERFORMANCE INDICATORS	PACING DAYS PLAN #	RESOURCES (Print, Visual, Technology, Manipulatives)	ASSESSMENT (Evidence & Scoring Guides)
	<b>Unit 7: Climate and the Water Cycle</b>			
P.S. 4.2A	<ul style="list-style-type: none"> <li>Students use the concepts of density and heat energy to explain observations of weather patterns, seasonal changes, and the movements of the Earth's plates.</li> </ul>	2 Days	Textbook  Weather Maps ESRT  Video: National Geographic Weather  Video: National Geographic Tornadoes  Video: Hurricane Iniki  Timers Plastic Tubes Graduated Cylinders  Maps	Weather Pattern Lab Hurricane Andrew Lab Groundwater Porosity / Permeability Lab NYS Water Sheds Lab
P.S. 4.2A1	<ul style="list-style-type: none"> <li>Earth systems have internal and external sources of energy, both of which create heat.</li> </ul>			
P.S. 4.2B	<ul style="list-style-type: none"> <li>Students explain how incoming solar radiation, ocean currents, and land masses affect weather and climate.</li> </ul>			
P.S. 4.2B1	<ul style="list-style-type: none"> <li>Insolation (solar radiation) heats Earth's surface and atmosphere unequally due to variations in the intensity caused by differences in atmospheric transparency and angle of incidence which vary with time of day, latitude, and season; characteristics of the materials absorbing the energy such as color, texture, transparency, state of matter, and specific heat; and duration, which varies with seasons and latitude.</li> </ul>			
P.S. 4.2B	<ul style="list-style-type: none"> <li>The transfer of heat energy within the atmosphere, the hydrosphere, and Earth's surface occurs as the result of radiation, convection, and conduction. Heating of Earth's surface and atmosphere by the Sun drives</li> </ul>			



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	convection within the atmosphere and oceans, producing winds and ocean currents.			
P.S. 4.2B3	<ul style="list-style-type: none"> <li>A location's climate is influenced by latitude, proximity to large bodies of water, ocean currents, prevailing winds, vegetative cover, elevation, and mountain ranges.</li> </ul>			
P.S. 4.2B4	<ul style="list-style-type: none"> <li>Temperature and precipitation patterns are altered by: natural events such as El Nino and volcanic eruptions; and human influences including deforestation, urbanization, and the production of greenhouse gases such as carbon dioxide and methane.</li> </ul>			
P.S. 4.1B7	<ul style="list-style-type: none"> <li>Earth has continuously been recycling water since the outgassing of water early in its history. This constant recirculation of water at and near Earth's surface is described by the hydrolic (water) cycle. Water is returned from the atmosphere to Earth's surface by precipitation. Water returns to the atmosphere by evaporation or transpiration from plants. A portion of the precipitation becomes runoff over the land or infiltrates into the ground to become stored in the soil or groundwater below the water table. Soil capillarity influences these processes. The amount of precipitation that seeps into the ground or runs off is influenced by climate, slope of the land, soil, rock type, vegetation, land use, and degree of saturation.</li> </ul>	4 Days		



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	Porosity, permeability, and water retention affect runoff and infiltration.			
	<b>Unit 8: The Earth in Space</b>			
P.S. 4.1	<ul style="list-style-type: none"> <li>The Earth and celestial phenomena can be described by principles of relative motion and perspective.</li> </ul>	3 Days	Radiometer Demo	Climate Factors Lab
P.S. 4.1A	<ul style="list-style-type: none"> <li>Students explain complex phenomena, such as tides, variation in day length, solar insolation, apparent motion of the planets, and annual traverse of the constellations.</li> </ul>			
P.S. 4.1A5	<ul style="list-style-type: none"> <li>The Foucault pendulum and the Coriolis Effect provide evidence of Earth's rotation.</li> </ul>			
P.S. 4.1A4	<ul style="list-style-type: none"> <li>Earth rotates on an imaginary axis at a rate of 15 degrees per hour. To people on Earth, this turning of the planet makes it seem as though the Sun, the moon, and the stars are moving around Earth once a day. Rotation provides a basis for our system of local time; meridians of longitude are the basis for time zones.</li> </ul>	3 Days	Plastic Globes Boards Pins Strings Calculator  Longitude and Time Zones	Coast vs. Continent Lab Celestial Motion Lab Phases of the Moon Lab Eclipses Lab Ellipses Lab Law of Orbits Lab
P.S. 4.1 A3	<ul style="list-style-type: none"> <li>Earth's coordinate system of latitude and longitude, with the equator and prime meridian as reference lines, is based upon Earth's rotation and our observation of the Sun and stars.</li> </ul>			
P.S. 4.1A6	<ul style="list-style-type: none"> <li>Earth's changing position with regard to the Sun and the moon has noticeable effects. Earth revolves around the Sun with its rotational axis tilted at 23.5</li> </ul>			



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	<p>degrees to a line perpendicular to the plane of its orbit, with the North Pole aligned with Polaris. During Earth's one-year period of revolution, the tilt of its axis results in changes in the angle of incidence of the Sun's rays at given latitude; these changes cause variation in the heating of the surface. This produces seasonal variation in weather.</p>			
P.S. 4.1A7	<ul style="list-style-type: none"> <li>Seasonal changes in the apparent positions of constellations provide evidence of Earth's revolution.</li> </ul>			
P.S. 4.1A8	<ul style="list-style-type: none"> <li>The Sun's apparent path through the sky varies with latitude and season.</li> </ul>			
P.S. 4.1A1	<ul style="list-style-type: none"> <li>Most objects in the solar system are in regular and predictable motion. These motions explain such phenomena as the day, the year, seasons, and phases of the moon, eclipses, and tides. Gravity influences the motions of celestial objects. The force of gravity between two objects in the universe depends on their masses and the distance between them.</li> </ul>			
P.S. 4.1A2	<ul style="list-style-type: none"> <li>Nine planets move around the Sun in nearly circular orbits. The orbit of each planet is an ellipse with the Sun located at one of the foci. Earth is orbited by one moon and many artificial satellites.</li> </ul>			
M.A. 1.1	<ul style="list-style-type: none"> <li>Abstraction and symbolic representation are used to communicate mathematically. (eccentricity)</li> </ul>			



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P.S. 4.1B3	<ul style="list-style-type: none"> <li>Our solar system formed about five billion years ago from a giant cloud of gas and debris. Gravity caused Earth and the other planets to become layered according to density differences in their materials. The characteristics of the planets of the solar system are affected by each planet's location in relationship to the Sun. The terrestrial planets are small, rocky, and dense. The Jovian planets are large, gaseous, and of low density.</li> </ul>	3 Days	Videos  <a href="http://www.regentsprep.org">www.regentsprep.org</a>	Homework Quizzes Exams  Regents Review
P.S. 4.1A9	<ul style="list-style-type: none"> <li>Approximately 70 percent of Earth's surface is covered by a relatively thin layer of water, which responds to the gravitational attraction of the moon and the Sun with a daily cycle of high and low tides.</li> </ul>			
P.S. 4.1B	<ul style="list-style-type: none"> <li>Students describe current theories about the origin of the universe and solar system.</li> </ul>			
P.S. 4.1B1	<ul style="list-style-type: none"> <li>The universe is vast and estimated to be over ten billion years old. The current theory is that the universe was created from an explosion called the Big Bang. Evidence for this theory includes: cosmic background radiation, and a red-shift (the Doppler Effect) in the light from very distant galaxies.</li> </ul>	10 Days		
P.S. 4.1B2	<ul style="list-style-type: none"> <li>Stars form when gravity causes clouds of molecules to contract until nuclear fusion of light elements into heavier ones occur. Fusion releases great amounts of energy over millions of years. The stars differ from</li> </ul>			



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	<p>each other in size, temperature, and age. Our Sun is a medium-sized star within a spiral galaxy of stars known as the Milky Way. Our galaxy contains billions of stars, and the universe contains billions of such galaxies.</p>			
P.S. 4.1B4	<ul style="list-style-type: none"> <li>• Asteroids, comets, and meteors are components of our solar system. Impact events have been correlated with mass extinction and global climatic change. Impact craters can be identified in Earth's crust.</li> </ul>			
P.S. 4.1B5	<ul style="list-style-type: none"> <li>• Earth's early atmosphere formed as a result of the outgassing of water vapor, carbon dioxide, nitrogen, and lesser amounts of other gases from its interior.</li> </ul>			
P.S. 4.1B6	<ul style="list-style-type: none"> <li>• Earth's oceans formed as a result of precipitation over millions of years. The presence of an early ocean is indicated by sedimentary rocks of marine origin, dating back about four billion years.</li> </ul>			