

Earth Science Curriculum Map

MONTH	CONTENT	NYS STANDARD/KEY IDEA/PERFORMANCE INDICATOR	LAB THEMES	SKILLS	ASSESSMENT
S E P T E M B E R	<u>Observation, Measurement, and Change</u> Observation/inference Classification Measurement Units Instruments % error Density Temperature Pressure Frames of Reference Graphing Axes Independent Dependent Scales Cyclic Non-cyclic Slope & rate of change Inverse Direct Interpolation Extrapolation Interface Dynamic equilibrium Pollution & pollutants	1:1(Mathematical Analysis) 4:1.1a 4:2.1q 6:4 6:5 6:6	Safety Observation/Inference Density-Solids Density-Liquids Graph Analysis Classification * New York State requires 1200 lab minutes for a student to be able to take the Regents exam.	Measuring length, time, mass, volume, density Graphing Calculating % Error Classification	Lab write-ups Exams with regents questions Resource provided with textbook Various CD's Homework Question and Answer Sessions Quizzes Projects and presentation

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<p>O C T O B E R</p>	<p>Measuring the Earth & Earth Motions Shape of the Earth Evidence Latitude Polaris Longitude E's rotation, Time zones Fields Isolines Contour lines Gradient Profiles Topographic maps Scale & distance Compass directions Map symbol conventions Rule of V's Earth's motions Geo/heliocentric systems *Historic astronomers Geometry of orbits Ellipses Gravitation Rotation Evidence Coriolis, Foucault Star paths Apparent daily motion Revolution, Tilt Seasons Calendar systems Moon phases Tides, Eclipses</p>	<p>1:1 (Mathematical Analysis, Scientific Inquiry) 1:2 (Mathematical Analysis) 4:1.1 a,b,c,d,e,f,g,h,i 4:2.1 q 6:2 6:3</p>	<p>Coordinate systems Topographic maps Topographic profiles Eccentricity Apparent path of the Sun Angle of insolation Lunar Cycles</p>	<p>Measuring (altitude, rate of rotation, distance) Calculating (slope, gradient) Plotting fields & ellipses Constructing isolines Forecasting trends & patterns</p>	<p>Lab write-ups Exams with regents questions Resource provided with textbook Various CD's Homework Question and Answer Sessions Quizzes Projects and presentation</p>

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N O V E M B E R	Earth's Energy Systems Electromagnetic radiation Wavelength & Q Kinetic theory 4 phases *Phases changes *Heating/cooling curve *Latent heat Specific heat Water vs rock Temperature vs Heat Units/instruments Temperature scales Three Q transfer methods Conduction, convection radiation EMR interactions Atmosphere Reflection, refraction Absorption, transmission diffusion Surfaces absorbers/reflectors Interactions Greenhouse effect Radiational cooling Aerosols Pollutants Dynamic equilibrium	1:3 (Mathematical Analysis) 4:2.1a,b,c,d 4:2.2 a,b,d	Conduction Radiation/absorption Land vs H ₂ O Specific Heat Dew Point & Relative Humidity Cloud Base Height	Distinguishing between types of energy transfer & interactions Measuring dry bulb/wet bulb Determining moisture, dew point	Lab write-ups Exams with regents questions Resource provided with textbook Various CD's Homework Question and Answer Sessions Quizzes Projects and presentation

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N O V E M B E R - D E C E M B E R	<p><u>Atmospheric variables and Meteorology</u></p> <p>Atmospheric variables</p> <p>Moisture /relative humidity</p> <p>dew point /cloud formation</p> <p>Pressure /station model</p> <p>isobars /pressure gradient</p> <p>circulation /Temperature</p> <p>station model, isotherms</p> <p>temperature gradient</p> <p>Air masses & source regions</p> <p>characteristics</p> <p>location /Movement</p> <p>Coriolis effect</p> <p>planetary wind belts</p> <p>storm tracks</p> <p>Interfaces/fronts /big four</p> <p>warm, cold, occluded, stationary</p> <p>Adiabatic heating cooling</p> <p>Orographic effect</p> <p>leeward/windward</p> <p>Weather maps /Station model</p> <p>symbols /synoptic</p> <p>forecasting</p> <p>Severe storms, preparedness</p>	<p>4:2.1 c,d,e,f,g,h,I</p> <p>4:2.2 b,c</p> <p>7:2</p>	<p>Weather patterns</p> <p>Cloud base height</p> <p>Hurricanes</p> <p>Sling Psychrometer</p>	<p>Gathering atmospheric data</p> <p>plotting station model info.</p> <p>Organizing synoptic weather maps</p> <p>predicting storm tracks and trends</p>	<p>Lab write-ups</p> <p>Exams with regents questions</p> <p>Resource provided with textbook</p> <p>Various CD's</p> <p>Homework</p> <p>Question and Answer Sessions</p> <p>Quizzes</p> <p>Projects and presentation</p>

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<p style="text-align: center;">J A N U A R Y</p>	<p><i>Climate</i> *Budget systems heat water glacier Factors affecting climate elevation latitude propinquity of water ocean currents wind belts land use urban/rural Climographs *Water density salinity temperature Sea floor landscape Currents surface deep ocean</p>	<p>4:1.2 g,f 4:2 .2 b,c,d,h,i</p>	<p>Ocean currents Climate</p>	<p>Locating global climate Zones Identifying climate affecting factors</p>	<p>Lab write-ups Exams with regents questions Resource provided with textbook Various CD's Homework Question and Answer Sessions Quizzes Projects and presentation</p>

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<p>F E B R U A R Y</p>	<p><u>Surface Processes & Landscapes</u> Hydrologic cycle Runoff vs infiltration factors affecting slope surface characteristics permeability porosity particle size, shape sorting, packing saturation precipitation rate Subsurface hydrology water table capillarity groundwater, wells pollution Current velocity factors affecting gradient, discharge channel profile Stream anatomy watersheds, divides, tributaries, meanders, ox-bows, deltas, levees</p>	<p>1:2(mathematical analysis) 4:1.2g 4:2.1 p,q,r,t,u,v</p>	<p>Porosity-permeability Watersheds</p>	<p>Describing regolith characteristics Observe stream characteristics and watershed patterns</p>	<p>Lab write-ups Exams with regents questions Resource provided with textbook Various CD's Homework Question and Answer Sessions Quizzes Projects and presentation</p>

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<p>M A R C H</p>	<p><u>Weathering, Erosion, & Deposition</u> Weathering chemical acid precipitation ground water carbonation physical frost action pressure unloading biological activity Erosion Agents Gravity Running water Streams Waves Wind Glaciers Sediment signatures Current velocity & particle size Equilibrium Landscape effects valley shapes erosion deposition evidence</p>	<p>1:2 (Mathematical analysis) 4:2.1 p,q,r,s,t,u,v,w 6:1</p>	<p>Rock abrasion Settling rate Landscapes</p>	<p>Compare and contrast physical & chemical weathering List the agents of erosion Determine carrying capacity & stream loads Locate NYS glacial landscape evidence</p>	<p>Lab write-ups Exams with regents questions Resource provided with textbook Various CD's Homework Question and Answer Sessions Quizzes Projects and presentation</p>

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<p>M A R C H - A P R I L</p>	<p><u>Minerals & Rocks</u> Mineral definition Physical & chemical characteristics Testing /Uses Rock forming Rock types Ingredients/Formation Rock cycle /Dynamic crust Evidence Continental drift Wegener /Plate tectonics Driving force Sea floor spreading Mid ocean ridges Transform faults Subsidence zones Offshore trenches Mountains Folded, volcanoes Faults and earthquakes Seismology Seismic waves Epicenter location</p>	<p>4:2.1 a,b,j,k,l,m,n,o,p,r 4:3.1 a,b,c</p>	<p>Mineral ID Rock ID Earthquake epicenters Continental drift</p>	<p>Observing physical characteristics of rocks and minerals Correlate physical evidence of continental drift Develop a home preparedness drill Triangulate epicenter location</p>	<p>Lab write-ups Exams with regents questions Resource provided with textbook Various CD's Homework Question and Answer Sessions Quizzes Projects and presentation</p>

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A P R I L	<i>Earth's History</i>	4:2.1 a,b,j,k,m,p	Sequencing layers	Comparing fossil	Lab write-ups
	*Stratigraphy	4:1.2 e,g	Half lives	evidence	Exams with regents questions
	Earth's interior	4:1	Rock record	Distinguishing rock columns	Resource provided with textbook
	Uniformitarianism	4:1.2 h,i,j		Determining rock age	Various CD's
	Relative dating			Analyze NYS geologic events	Homework
	Superposition				Question and Answer Sessions
	Orig Horizontality				Quizzes
	Young faults & folds				Projects and presentation
	Old sediments				
	Contact metamorphism				
	Old inclusions				
	Unconformities				
	Index fossils				
	Absolute dating				
	Radioactive decay				
	Geologic Time Scale				
Evolution					
Early atmosphere					
Tectonic events					

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<p>May</p>	<p><i>Earth, Space, and Beyond</i> Solar system Sun Sun spots Flares Auroras Planets Asteroids Meteors Impacts Comets *Space exploration NASA Spinoffs Future Space Planes Mars Communications Global positioning Remote sensing Big Bang Doppler Effect</p>	<p>1:1 (Scientific inquiry) 4:1.1 a,b,d 4:1.2 a,b,c,d</p>	<p>Variable sun/star properties</p>	<p>Compare luminosity to temperature Describe the life cycle of stars</p>	<p>Lab write-ups Exams with regents questions Resource provided with textbook Various CD's Homework Question and Answer Sessions Quizzes Projects and presentation</p>

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<p>J U N E</p>	<p><u>REGENTS REVIEW</u> Lab wrap up Lab Performance Test Review</p>		<p>REGENTS LAB PERFORMANCE TEST</p>		<p>Regents Review</p>

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