

## COURSE: Regents Earth Science

### Grade Level: grade 9

MAIN/ GENERAL TOPIC	SUB-TOPIC:	ESSENTIAL QUESTIONS:	WHAT THE STUDENTS WILL KNOW:	WHAT THE STUDENT WILL BE ABLE TO DO:	Assessments:	WHEN STUDENT DOES IT:
Measurements and physical properties of Earth	Reading and following directions. Use of tables. Mass, volume, density. Metric units. Graphing skills and interpretation. <i>Reference table Formulas for; density, rate of change, and percent deviation.</i>	What does density describe? How can density be changed? How can a graph be used?	Density is mass per unit volume. Density doesn't change with sample size, it is a physical property of a material. Denser materials sink. Water is the standard for comparison. Graphs show relationships between variables. In a direct relationship both variables increase. In an inverse relationship, one does the other decreases. Related vocabulary	Measure mass, volume, temperature, Express answers to the nearest tenth in metric units. Read reference tables regarding measurement. Determine percent deviation. Determine density using $D=M/V$ forward and backwards. Graph data accurately, extrapolate and interpolate graphs and understand direct and inverse relationships between variables.	Lab 3 Quizzes Class worksheets homework	During lab, during class, at home
Mapping Earth	Size and shape of earth. Latitude longitude. Field maps: all types, Contour maps, <i>Reference table formulas for GRADIENT,</i> Reading and Following Directions.	How is the globe a good model of the Earth? How do we locate places on Earth? How do contour maps show landforms and elevation? How do you read a contour map? How can any measurable quantity be mapped?	Earth looks like a perfect sphere but is slightly oblate, bulging slightly at equator. Earth's surface is smooth compared to the size of it. The atmosphere, hydrosphere and lithosphere are all thin layers.  Latitude is based on star Polaris over axis of rotation, and how to determine latitude of locations. Longitude is based on the Sun as Earth rotates, and how to determine Longitude of a location. How to determine time at different Locations. How to determine direction of stream Flow on a map and potential elevation Within the contour interval. Related vocabulary	Determine degrees latitude and direction, longitude and direction. Read and comprehend contour maps and their keys. Determine gradient, draw profiles, plot field maps	Labs: me and my shadow, observing change. Taking measures Graphing relationships Latitude and longitude(5) Making a topo map Reading topo maps Classwork: <i>to read and follow directions</i> Quizzes: vocabulary and mc Tests: part c, short answer, constructed response. Homework Concept maps	september

astronomy	The universe Origin and age Structure of the universe Galaxies and solar system Earth and moon and celestial motions	How does the sun compare to other stars? Why is everything on earth stellar? How does Earth's orbit compare to other planets'?	Current theories about the origin of the universe, galaxies and solar system. Understand Red shift significance and basic spectroscopy. Comparison of the planets: jovian and terrestrial. Structure and life cycle of stars Earth's moon: origin and motions, tides, phases, left thumb is waxing and right thumb is waning. Geocentric and heliocentric theories. Shape of earth's orbit.	Draw ellipses and determine eccentricity Identify lunar phases Identify constellations Understand significance of Foucault Pendulum Plot path of Sun on a dome Determine sun's position and path at different times of day and times of year. Understand cyclic changes on earth, the moon and Sun. (sunspots)	Labs:, sunspots, ellipses, celestial observations (10),	October- November
energy	The electromagnetic spectrum Transfer of energy Phase changes Temperature scales Earth's energy engines Earth's uneven heating	Why is the sky blue? Why is earth unevenly heated? Why are there seasons? What are Earth's sources of energy and how to they flow?	Earth is fueled by 2 nuclear engines: the sun fusion and internal fission. Energy is radiated by all objects above absolute zero. Radiation, conduction, convection Earth is unevenly heated because of the changing angle of insolation due to time of day, latitude and time of year. Some surfaces absorb and some reflect. Some materials heat faster and cool faster due to low specific heat. Water heats the slowest of all and holds heat longest.	Radiation, conduction, convection demonstrations of each.	Labs: angle of insolation Conduction Absorption vs reflection Heating of soil vs water Properties of water(15)	
meteorology	Dewpoint Relative humidity	Why do we have changing weather? Why do we have weather at all? How do we predict			Dewpoint Cloud base and RH	
climate						
Geology						
Plate /Tectonics						
History of the Earth						

