

Physical Setting/Earth Science
Suggested Pacing Plan

Month/ Dates	Topic	Textbook Alignment “Earth Science” ©2005 by McDougal Littell	Vocabulary		Suggested Labs/Activities
<p>September & October</p>	<p>Prologue</p> <ul style="list-style-type: none"> ▪ Earth measurements • Formulas/observation • Density • Mapping 	<p>p. 2-64 (Unit 1)</p>	<ul style="list-style-type: none"> • Direct Relationship • Inverse Relationship • No Relationship • Classification • Cyclic change • Density • Dynamic equilibrium • Inference • Instrument • Interface • Mass • Measurement • Natural hazard • Natural resources • Observation • Percent deviation • Pollution • Prediction • Rate of change • Universe • Volume • Atmosphere • Contour line • Coordinate system 	<ul style="list-style-type: none"> • Crust • Earth’s interior • Elevation • Equator • Field • Gradient • Hydrosphere • Isoline • Latitude • Lithosphere • Longitude • Meridian of longitude • Model • Pauses (of atm) • Prime meridian • Profile • Topographic map • Time zone • Solar noon • International date line • Describe • Differentiate • Compare/Contrast 	<p>Lab Manual pg 1-12 ESRT* pg 1: (radioactive decay data, specific heats of common materials, properties of water, equations) ESRT pg 10 (Inferred properties of Earth’s interior)</p> <p>Mini Lab pg 11 “How Bio. Affects Hydrosphere) Mini Lab pg 20-21 “Density of Earth material” Mini Lab pg 36 “Making a sextant” Mini Lab pg 38-39 “Making Inferences from Observations” Mini Lab pg 56 “Drawing a Profile” Mini Lab pg 58-59 “Map Activity”</p> <p>*ESRT = Earth Science Reference Tables</p>

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November & December	<p>Astronomy/Earth Motions</p> <ul style="list-style-type: none"> • Solar System/Stars • Doppler Effect • Structure of Universe/Eccentricity • Kepler's Laws • Rotation/Revolution • Energy/Earth Proc. 	<p>p. 46-47 p. 75-83 p. 541-543 p. 543-565 p. 577-580 p. 588-605 p. 626-627 p. 634</p>	<ul style="list-style-type: none"> • Rotation ▪ Revolution ▪ Constellations ▪ Circumpolar constellations ▪ Polaris ▪ Coriolis effect ▪ Foucault pendulum ▪ Doppler effect of starlight ▪ Apparent motion ▪ Heliocentric ▪ Geocentric ▪ Celestial ▪ Horizon ▪ Sunrise ▪ Zenith ▪ Altitude ▪ Shadow ▪ Sunset ▪ Tilt ▪ Axis ▪ Insolation 	<ul style="list-style-type: none"> ▪ Duration of insolation ▪ Tropic of cancer ▪ Tropic of Capricorn ▪ Angle of insolation ▪ Direct rays ▪ Sunspots cyclic change ▪ Ellipse ▪ Major axis ▪ Eccentricity ▪ Focus/foci ▪ Orbital path/orbit ▪ Gravity ▪ Inertia ▪ Solar system ▪ Terrestrial planets ▪ Jovian planets ▪ Period of rotation ▪ Period of revolution ▪ Natural satellites (moons) ▪ Artificial satellites 	<p>Lab Manual pg 109-126</p> <p>ESRT: pg 15 (Electromagnetic Spectrum) ESRT pg 15 (Luminosity and temperature of Stars) ESRT pg 15 (Solar System Data)</p> <p>Mini Labs</p> <ul style="list-style-type: none"> • Pg 544-545 "Oceanic Water Masses" • Pg 557 "Weights on the Moon & Earth" • Pg 566-567 "Making Impact Craters" • Pg 578 "Orbital Forces" • Pg 582-583 "Scale model of the solar system" • Pg 592 "Design a Martian calendar" • Pg 606-607 "Galilea Moons of Jupiter" • Pg 616 "Simulate the Doppler Effect"

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December & January	<ul style="list-style-type: none"> ▪ Insulation & Seasons 	p. 372-377 (Insulation) p. 82-83 (Seasons)	<ul style="list-style-type: none"> ▪ Tilt ▪ Axis ▪ Insolation ▪ Duration of insolation ▪ Tropic of cancer ▪ Tropic of Capricorn ▪ Angle of insolation ▪ Direct rays 		Lab manual pg 13-16, Lab manual pg 75-80
January & February	<ul style="list-style-type: none"> ▪ Meteorology/Weather & Climate 	p. 362-485 p. 532-534	<ul style="list-style-type: none"> ▪ Weather ▪ Meteorology ▪ Atmosphere ▪ Troposphere ▪ Ozone ▪ Radiation ▪ Conduction ▪ Convection ▪ Insulation ▪ Greenhouse effect ▪ Isotherm ▪ Stratosphere ▪ Evaporation ▪ Humidity ▪ Relative humidity ▪ Dew point ▪ Condensation ▪ Condensation nuclei ▪ Clouds precipitation ▪ Acid rain ▪ Air pressure ▪ Barometer ▪ Isobar ▪ Cyclone (low) ▪ Anticyclone (high) ▪ Pressure gradient ▪ Sea breeze 	<ul style="list-style-type: none"> ▪ Land breeze ▪ Coriolis effect ▪ Wind ▪ Wind belts ▪ Doldrums (ITCZ) ▪ Monsoons ▪ Jet streams ▪ Air mass ▪ Maritime ▪ Continental ▪ Front ▪ Occluded front ▪ Stationary front ▪ Tornado ▪ Cumulonimbus cloud ▪ Hurricanes ▪ Storm surge ▪ Blizzard ▪ Weather satellites ▪ Station model ▪ Climate ▪ Marine climate ▪ Continental climate ▪ Leeward ▪ Windward ▪ Global warming ▪ Ocean currents 	Lab Manual pg 75-96 ESRT pg 4 (surface ocean currents) ESRT pg 11 (Average Chemical Composition...) ESRT pg 12 (both charts) ESRT pg 13 (all) ESRT pg 14 (Selected Properties of Earth's Atm) Mini Labs: <ul style="list-style-type: none"> • Pg 370 "changes of state" • Pg 384-385 "absorption and radiation of heat" • Pg 393 "measuring humidity" • Pg 408-409 "effects of acid rain" • Pg 423 "observing air in motion" • Pg 430-431 "correlating weather variables" • Pg 441 "Graphing a

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					<p>Front”</p> <ul style="list-style-type: none"> • Pg 460-461 “Map Activity – Severe Storms” • Pg 472 “Classroom Microclimate” • Pg 478-479 “Observing Greenhouse Gasses”
<p>February & March</p>	<ul style="list-style-type: none"> • Weathering & Erosion ▪ Deposition ▪ Rocks & Minerals 	<p>p. 96-115 (minerals) p. 116-141 (rocks) p. 256-356 (weathering)</p>	<p>Rocks & Minerals</p> <ul style="list-style-type: none"> ▪ Cleavage ▪ Fracture ▪ Luster ▪ Metallic ▪ Nonmetallic ▪ Streak ▪ Hardness ▪ Density ▪ Crystal ▪ Sedimentary ▪ Clastic ▪ Fragmental ▪ Evaporates ▪ Organic ▪ Cementation ▪ Compaction ▪ Fossiliferous ▪ Sediment ▪ Igneous ▪ Plutonic ▪ Intrusive ▪ Extrusive ▪ Volcanic ▪ Magma ▪ Lava ▪ Felsic 	<ul style="list-style-type: none"> ▪ Contact ▪ Banding ▪ Foliated ▪ Recrystallization <p>Weathering & Erosion</p> <ul style="list-style-type: none"> ▪ Mechanical weathering ▪ Chemical weathering ▪ Frost wedging ▪ Conservation ▪ Soil ▪ Agent ▪ Wave action ▪ Glacier ▪ Soil creep ▪ Delta ▪ Watersheds ▪ U-shaped valley ▪ V-shaped valley ▪ Stream ▪ Wind ▪ Moraine ▪ Drainage paggern ▪ Drumlin <p>Deposition</p> <ul style="list-style-type: none"> ▪ Settling rate 	<p>Lab Manual pg 51-74 Lab Manual pg 27-32 Lab Manual pg 23-26</p> <p>ESRT pg 6-7 all tables ESRT pg 11 (Average Chemical Composition...) ESRT pg 16 (Properties of Common Minerals)</p> <p>Mini-Labs:</p> <ul style="list-style-type: none"> • Pg 263 “Surface Area & Chemical Weathering” • Pg 274-275 “Chemical Weathering & Temperature” • Pg 285 “Modeling River Sediments”

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			<ul style="list-style-type: none"> ▪ Mafic ▪ Texture ▪ Metamorphic ▪ Regional 	<ul style="list-style-type: none"> ▪ Graded bedding ▪ Horizontal sorting ▪ Vertical sorting ▪ Angular shapes ▪ Particle size 	<ul style="list-style-type: none"> • Pg 294-295 "Stream Divides and River Systems" • Pg 312-313 "Water Budgets" • Pg 320 "Modeling Glacier Formation" • Pg 334-335 "Modeling Glacial Movement" • Pg 345 "Making Waves" • Pg 354-355 "Beach Erosion and Deposition" • Pg 107 "Measuring Specific Gravity" • Pg 112-113 "Specific Gravity and mineral identification" • Pg 134 "Metamorphic Molds" • Pg 138-139 "Studying Rocks in Thin Sections"

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<p>March & April</p>	<ul style="list-style-type: none"> ▪ Dynamic Crust ▪ Plate Tectonics 	<p>p. 172-249</p>	<ul style="list-style-type: none"> ▪ Plate tectonics ▪ Plates ▪ Lithosphere ▪ Asthenosphere ▪ Convection currents ▪ Continental drift ▪ Plate boundaries ▪ Magnetic polarity ▪ Sea floor spreading ▪ Diverging boundaries ▪ Converging boundaries ▪ Rift valleys ▪ Mid-ocean ridges ▪ Fault ▪ Folding 	<ul style="list-style-type: none"> ▪ Trench ▪ Volcano ▪ Hot spots ▪ Earthquake ▪ Focus ▪ Epicenter ▪ Seismic waves ▪ Seismograph (gram) ▪ Travel-time graph ▪ Transform fault ▪ Richter scale ▪ Mercalli Scale ▪ “moho” ▪ Shadow zone ▪ Tsunami ▪ Subduction zone 	<p>Lab Manual pg35-50</p> <p>ESRT pg 5 (Tectonic Plates) ESRT pg 11 (Earthquake p-wave and S-wave Travel Time) ESRT pg 11 (Average Chemical Composition)</p> <p>Mini Labs</p> <ul style="list-style-type: none"> • Pg 175 “Ocean Floor Magnetism” • Pg 188-189 “Nuclear Facilities and Plate Boundaries” • Pg 200 “Modeling Viscosity” • Pg208-209 “Map Activity: Where are Active Volcanoes?” • Pg 219 “Interpreting a Travel-time Graph” • Pg 230-231 “Earthquake Engineering” • Pg 240 “Modeling a Fault” • Pg 246-247 “Folded Mountain Range”

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April & May	<ul style="list-style-type: none"> ▪ Geologic History 	p. 646-690	<ul style="list-style-type: none"> ▪ Absolute age ▪ Bedrock ▪ Carbon-14 dating ▪ Correlation ▪ Extrusion ▪ Fossil ▪ Geologic time scale ▪ Half-life ▪ Inclusion ▪ Index fossil ▪ Intrusion ▪ Isotope ▪ Organic evolution (theory of) ▪ Outgassing ▪ Principle of superposition ▪ Radioactive dating ▪ Radioactive decay ▪ Species ▪ Unconformity ▪ Uranium-238 ▪ Volcanic ash ▪ Relative age 	<ul style="list-style-type: none"> ▪ Igneous intrusion/extrusion ▪ Contact metamorphism ▪ Correlation ▪ Rock & fossil record ▪ Index or guide fossil ▪ Eons ▪ Eras ▪ Periods ▪ Epochs ▪ Precambrian era ▪ Paleozoic era ▪ Mesozoic era ▪ Cenozoic era ▪ Orogeny (ref table 8-9) ▪ Principle of uniformitarianism ▪ Absolute ▪ Actual age ▪ Half-life ▪ Radioactive isotope ▪ Extinct ▪ Species 	Lab Manual pg 127-136 ESRT: pg 2-3 (All) ESRT: pg 8-9 (ALL) Mini Labs <ul style="list-style-type: none"> • Pg 657 “A decay path” • Pg 660-661 “deciphering tree rings” • Pg 680 “Continental Isolations Effect on Species” • Pg 686-687 “Fossil Excavation”
May & June	<i>Review</i>				Review for Lab Practical

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Total Teaching Weeks: 34

Topics

- **Prologue** – September (4 weeks)
 - Earth measurements
 - Formulas/observations
 - Density
 - Mapping

- **Astronomy/Earth Motions** (5-6 weeks)
 - Solar System/Stars
 - Doppler Effect
 - Structure of Universe/Eccentricity
 - Kepler's Laws
 - Rotation/Revolution

- **Energy & Earth Processes** (lump above or below)

- **Insulation & Seasons** (2 weeks, end of November)

- **Meteorology/Weather & Climate** (6 weeks) – weeks

- **Weathering/Erosion & Deposition** (3 weeks) – weeks 25-27

- **Rocks & Minerals** (3-4 weeks) – weeks 28-30
 - 96-115 minerals
 - 116-141 rocks

- **Dynamic Crust/Plate Tectonics** (3 weeks) – weeks 31-33

- **Geologic History** (2 weeks) – weeks 34-35

- **Review** (3 weeks) – weeks 36-38