Core Labs for NYS Regents Earth Science

To sit for the Regents examination, a student must complete at least 30 40-minute periods (1200 minutes) of lab work and submit appropriate lab reports to be placed on file by the teacher. Although no specific labs are required for the Earth Science Regents exam, the following list of activities is a core of common experiences many of which are used by many experienced teachers of Regents Earth science.

(Listing by Thomas McGuire, former science coordinator, Briarcliff High School. This listing does not have the endorsement of the New York State Education Department. Corrections/suggestions are requested. If there's a lab (or labs) you feel should be added or deleted send suggestions to Tom; Cave Creek Digital, 38846 North Spur Cross Road, Cave Creek, AZ: cavecreekdigital@msn.com)

The labs in **bold print** are those that I consider "essential".

UNIT	CORE LABS/STUDENT ACTIVITIES FOR REGENTS EARTH SCIENCE
Prologue Measurement	Density (of Various Materials/Samples) The Density of Fluids (Alcohol & Water)
Unit 1 Earth's Dimensions	**Isoline Map of a Field** (Such as a Temperature Field) Making a Contour Map (of Small Models such as a Plastic Volcano) **Reading Your Local U.S.G.S. Quadrangle Map** **Making a Topographic Profile**
Unit 2/Topic A Minerals & Rocks	**Mineral Identification** **Igneous Rock Identification** **Sedimentary Rock Identification** **Metamorphic Rock Identification**
Unit 3/Topic B Earthquakes & Interior	**Locating Epicenters Using the Reference Tables and Maps** **Earthquake Patterns - Geographic & Vertical Distribution**
Unit 4 Landscapes/ Oceanography/Glacial	**Rock Abrasion** (ESCP) **Examining Sands and/or Other Beach/Soil Materials** Chemical Weathering and Temperature (fizzing tablets in water)
Unit 5 Earth's History	Working with Fossils (Stratigraphy, Correlation & Deducing Environments) **Footprint Puzzle** (What happened to produce this pattern?/Multiple Answers) **Geologic Time Line** (Earth History to Scale, on Paper Tape or Another Medium) **Radioactive Half Life** (Experience with Objects in a Shoe Box Or Radio-Nuclides) Geologic Profiles Inferring a Sequence of events from Profile Drawings
Unit 6 Weather	**Drawing Synoptic Weather Map(s)** (Using Various Fields to Interpret/Predict) **Make Your Own Clouds** **Tracking and Observing Characteristics & Effects of Violent Storms**
Unit 7 Climates	**Groundwater Movement** (ESCP- Plastic Columns, Porosity, Permeability, etc) **Interpreting Water Budgets** (Calculations are *not* required) Specific Heat (Comparing Water with Other Substances, Reference Tables) **Climate of an Imaginary Continent** (Understanding and applying Climate Factors) Mapping Watersheds (Draw Boundaries on a NY Map of Streams)
Unit 8 Astronomy	**Phases of the Moon** (Observing and Explaining) **Ellipses and Eccentricity** (String , Pins and Soft Board) **Measure and Graph the Length of a Shadow** Throughout the Day **Plotting Sun Paths** (w/ Plastic Hemispheres)
Unit 9 Environment	Carbon Dioxide in the Atmosphere/Greenhouse Effect **World Population** (Exponential Growth)

Essential & Important Equipment & Expendable Materials for Regents Earth Science:

(Essential materials are listed in bold type. Quantities will depend upon class sizes and budget.)

Lab Facilities:

Running water (Hot & **Cold), Electricity,** Gas service
Ability to make copies of student Lab/Activity sheets.

Lab/Activity Program:

A lab book or lab/activity program, Source(s) of Test Questions (Various Review Books?) Videos from cable TV science programs or commercial series like Encyclopedia Britanica

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General Lab Supplies:

(Specialized equipment and materials for the **essential**[1] labs are listed by unit on the next page.)

Safety Goggles, Mass Balances accurate to 0.1g, Beakers (50, **250**, 400 (plastic) & 1000 mL), Ring Stands, Wire Gausses, Matches/Strikers, Buret Clamps, Tongs

Other Useful Materials:
Magnifying Lenses, Scissors, Colored Pencils & water soluble markers for teacher and student use, plastic pails, 6' 5-8 cm (2-3 inch) diameter transparent plastic tubing, Rubber Cement or Paste, Masking and/or Transparent Tape, Reusalable plastic bags (1 gallon and sandwich sizes), Radio to receive weather and news reports, Computer with Internet Access and Printer, Plastic Containers for samples

Additional materials required for the Performance Test section of the Regents Exam.
See the guidelines sent by the New York State Education Department

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Collectables:

Local rock and mineral samples for use in identification labs, local geology demonstrations and other student activities, Videos from current broadcast television

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[1] Keys to McGuire's list of "essential" labs. This is not a State Education Department endorsed listing.

Other Materials Listed by Unit in the ESPRIT Syllabus:

(Some materials listed previously are placed here in course outline context.)

UNIT	CORE LABS/STUDENT ACTIVITIES FOR REGENTS EARTH SCIENCE
Prologue Measurement	**Mass Scales (accurate to 0.1 g)** (electronic are best), Half Meter Sticks, Overflow Cans,100 mL Graduated Cylinders, Denatured Alcohol, Density Samples
Unit 1 Earth's Dimensions	**About 30 inexpensive Metal Backed thermometers** **Plastic Map Globes (Detachable Hemispheres), Sticks w/ Suction Cups,** **Plastic Protractors, Clamp-On Lamps** Plastic Shoe Boxes w/ Lids and Plastic Volcano models **Local U.S.G.S. Quadrangle Maps**
Unit 2/Topic A & Rocks	**Mineral Samples (About a dozen varieties including those mentioned in** Minerals **the syllabus and on the Performance Test), Streak Plates, Magnets, Glass** **Scratch Plates** **Igneous, Sedimentary & Metamorphic Rock Samples (8-15 of each)**
Unit 3/Topic B Earthquakes & Interior	**Drawing Compasses & Pencils**
Unit 4 Landscapes/ Oceanography/Glacial	**Plastic Wide Mouth Rock Abrasion Bottles, Various Rock Chips,** **Sieves** (Plastic is best)Beakers (100 to 250 mL), Effravescent Tablets like Alka-Seltzer
Unit 5 Earth's History	Real or Plastic Fossils **Adding Machine Tape**
Unit 6 Weather	**Weather Maps** **Clear Bottles (1 gallon or larger), Plastic Bags, Ice, Matches**
Unit 7 Climates	**ESCP- Plastic Column kits** (Columns, Caps, Pinch Clamps), **Plastic Beads or** **Sorted Stones, Hot Plate, Sauce Pans, Tongs, Specific Heat Samples**, Air Fan **Heat Lamps, Plastic Pie Pans or Taller Containers, Foam Cups/Calorimeters**
Unit 8 Astronomy	**String , Pins and Soft Board for Ellipses and Eccentricity** **Transparent Plastic Hemispheres for Plotting Sun Paths,** **Water Soluble Pens**
Unit 9 Environment	Plastic Bags (1 Gallon)

and sacrifices yet to be imagined....