

# 2009 Earth Science

## Lab and projects

General instructions: The following will help clarify some of the instructions for various projects and labs. Please refer to this document often as you are responsible for its contents.

Helpful hit: When typing in a long answer, essay or report, I recommend typing it in word and either copying and pasting it into the assignment or uploading it, if that is an option. That way, if you happen to lose your connection in the middle of your work, all will not be lost. Trust me on this one! It's worth the extra effort. Plus, you can take advantage of all the Word features with spell and grammar checks.

I do consider the quality of your writing when grading. I expect clean spelling and good grammatical and sentence structure.

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## ***Unit 1***

1. Research a career – Follow the instructions. Your report should be at least three strong paragraphs and approximately 450-500 words in length. Use and record at least 2 reference sources.
2. Earth comparisons – You will do this assignment in Word (or similar program.) A comparative chart is required as is the answers to the 12 questions, written in complete sentences.
3. Building a model of the earth (virtual) – Follow the instructions as written.
4. Mantle convection (virtual) – Follow the instructions as written.
5. Plate boundaries (virtual) - Follow the instructions as written.
6. Sphere interaction lab (virtual) - Follow the instructions as written.

## ***Unit 2***

1. Earthquake features lab (virtual) - Follow the instructions as written.
2. Volcanic features lab (virtual) - Follow the instructions as written.
3. Mapping lab (virtual) - Follow the instructions as written.

## ***Unit 3***

1. Identifying a mineral (virtual) - Follow the instructions as written.
2. Identifying a rock (virtual) - Follow the instructions as written.

## ***Unit 4***

1. Soil particles – Supplies: 1 ½ cups potting soil  
½ cup sand  
2 wide-mouth jars with lids  
Masking tape  
Pen  
Spoon  
Water

Follow the directions

Answer each of the four sets of questions in paragraph form.

2. Ice erosion- Supplies: 10 pounds sand  
Square of window screen or kitchen mesh strainer  
2 plastic trays, about 8 x 24 inches  
Water  
Freezer  
Ruler  
Bucket  
Measuring cup

Follow the directions. However, no drawings are necessary.

Answer the five questions in complete sentences. As always, be sure to include the question as part of your answer.

## ***Unit 5***

Review and first semester exam. No projects.

## ***Unit 6***

1. Water purification – Supplies: 1 cup dirt  
4 cups water  
Small glass  
Large glass bowl  
Clear plastic wrap  
Small, round rock  
Sunshine

Complete the experiment as written.

Answer the four questions in complete sentences. As always, be sure to include the question as part of your answer.

2. Porosity and permeability – Supplies; Water  
Graduated cylinder (or measuring cup with metric measurement)  
6 clear cups  
Marker  
Metric ruler  
1 cup each of large, medium and small pebbles  
1 cup each gravel, sand, and dirt  
Funnel  
3 coffee filters  
Ring stand or rig some way to support the funnel

Complete the experiment as written.

Answer all questions in complete sentences. Be sure to clearly define the separate areas and questions of the experiment. As always, be sure to include the question as part of your answer.

3. Fresh water vs. salt water: Supplies: 4 TBS salt

Water

2 clear glasses

Measuring cup

Tablespoon

2 eggs

2 plastic cups

Spoon

Marker

Freezer

Stove

Small pot

Stopwatch or clock with second hand

2 pie plates or shallow pans about the same size

Paper

NOTE: Section four will take 1 week to complete. Plan ahead!

Complete each of the four section of this experiment as written. Be sure to record your results as you go.

Answer all questions very specifically in complete sentences. Be sure to clearly define the separate areas and questions of the experiment. As always, be sure to include the question as part of your answer.

## ***Unit 7***

1. Temperature – Supplies: Sheet of white paper

Sheet of black paper

Sunny window

Complete as directed and thoroughly answer the questions.

2. Air circulation (virtual) - Follow the instructions as written

3. Greenhouse Effect – Supplies: 2 shoe-box size boxes

Plastic wrap or pane of glass

2 thermometers for measuring air temp

Watch

2 lamps (if it's a cloudy day)

## Pen and paper

Perform as directed. Be sure to collect all the data on a chart similar to that in the lab. Each of your answers to the questions should be thorough and written in complete sentences.

### **Unit 8**

1. Weather or climate: Record you one word answers in the text box.
2. Clouds and weather (virtual) - Follow the instructions as written. Answer in complete sentences.
3. Clouds and rain – Supplies: 2 liter plastic soda bottle  
Matches  
Hot tap water  
Black pepper

Perform as directed and answer the 5 questions in complete answers. (As always, incorporate the question into your answer.)

4. Control the weather (virtual)- Perform as directed and answer the 9 questions in complete answers. (As always, incorporate the question into your answer.)
5. Predict the weather –
  - Part 1 – Prepare the weather chart. Data collection will be for 5 days.
  - Part 2 – Build a barometer Supplies:  
Coffee can or glass jar  
large balloon  
Rubber band  
Toothpick  
Glue  
Straw  
Index card
  - Part 3 – Build a Psychrometer supplies:  
2 thermometers  
Tape  
Wet piece of cotton or gauze  
Rubber band  
Cardboard

Complete as directed. However, section 2 is not required. Write a paragraph about the process of building the weather instruments. Submit these paragraphs along with your weather chart to [retrittipoe@liberty.edu](mailto:retrittipoe@liberty.edu) (or upload in the lab if a link is provided.)

## ***Unit 9***

1. Scale of the solar system (virtual) - Follow the instructions as written and provide
2. Newton's Law – Supplies: Bucket with handle  
Water

Complete as directed and answer in complete sentences

3. Identifying galaxies (virtual) - Follow the instructions as written

## ***Unit 10***

No labs or projects