

## ES 106 Lab Week 5 Earth-Sun Relations

**Read the following directions before starting into the lab activities in this packet. This addendum summarizes changes that are necessary for you to complete the lab at home.**

You can work on the lab packet on your own time during Sunday through Thursday of each week.

When you have completed the packet for this lab, you can take the weekly lab quiz that is available on Moodle. The online quiz is due by **6:00 PM on Thursday** and will no longer be available to students after that time. **Be sure to give yourself 30 minutes to complete the quiz!**

There will also be a **Hand-In Page** that is due by **6:00 PM on Thursday** (See directions below).

### **Directions:**

**Complete the Pre-Lab (Page 5.2) questions 1 and 2 first.**

See **Pages 495-498** in Chapter 16 of the Earth Science textbook by Tarbuck and Lutgens. (Chapter 16 is available on Moodle).

**You can skip Question 3.**

### **Part A:**

**We will skip Activity 1, Questions 1-8 on Pages 5.3 to 5.5!**

**However, students will need to fill out Figure 3 at the bottom of Page 5.5!**

See **Page 497** in Chapter 16 of the Earth Science textbook by Tarbuck and Lutgens. (Chapter 16 is available on Moodle).

### **Activity 2 (Pages 5.6 - 5.7):**

It is important that students read the information provided on Page 5.6 while working on Page 5.7.

It will be necessary to use the data in **Table 1** for answering many of the questions on Page 5.7.

In addition, it will be very helpful to look over **Pages 495 to 498** in Chapter 16 of the Earth Science textbook by Tarbuck and Lutgens. (Chapter 16 is available on Moodle).

## **Part B:**

### **Activity 1 (Pages 5.8 - 5.10):**

**Skip over the directions on Page 5.8**

See the experimental results for Activity 1 provided on Moodle for the data that you will need in order to fill in Table 2 on Page 5.9. Note that the slides show the experimental setup with a silver can on the left and a black can on the right. Each has a thermometer set in the top that indicates the air temperature inside each can while they are heated under a lamp.

After recording the data in Table 2 on Page 5.9, you will plot the data on the graph at the bottom of the page. Plot the data points as dots and then connect them with lines. You will have two separate lines on the graph when finished. Be sure to label each line!

Use the experimental results on Page 5.9 to answer Questions 1-3 on Page 5.10.

For questions 4-8, it will be useful to read **Pages 502 - 504** in Chapter 16 of the Earth Science textbook by Tarbuck and Lutgens. (Chapter 16 is available on Moodle).

### **Activity 2 (Pages 5.11-5.13)**

**Skip over the directions on Page 5.11**

See the experimental results for Activity 2 provided on Moodle for the data that you will need in order to fill in Table 3 on Page 5.12. This time you will be looking at the temperature change of sand and water that were placed under a lamp. Keep in mind that both samples are receiving equal amounts of light.

After recording the data in Table 3 on Page 5.12, you will plot the data on the graph (Figure 5) at the bottom of the page. Plot the data points as dots and then connect them with lines. You will have two separate lines on the graph when finished. Be sure to label each line!

Use the experimental results on Page 5.12 to answer Question 1 at the top of Page 5.13.

For Question 2 at the top of Page 5.13, it will be useful to read **Pages 506 to 507** in Chapter 16 of the Earth Science textbook by Tarbuck and Lutgens. (Chapter 16 is available on Moodle).

**Activity 3 (Page 5.13):**

Use Figure 6 at the top of Page 5.14 to answer Questions 1-8. Note that this activity is comparing the annual temperature data of a city located in the interior of the North American continent to that of a city located along the west coast. In addition, **Pages 506 to 507** in Chapter 16 of the Earth Science textbook by Tarbuck and Lutgens will be helpful.

Note that while the directions in the lab packet tell you refer to Figure 16.18 in the textbook, the figure that you will need to refer to in chapter 16 of the textbook on Moodle is **Figure 16.28**.

**Activity 3 (Page 5.15):**

Use Figure 7 at the bottom of Page 5.14 to answer Questions 3-7.

For Questions 8 and 9, it will be useful to look at **Page 509** in Chapter 16 of the Earth Science textbook by Tarbuck and Lutgens. **See Figure 16.32 for Question 9!**

**We will skip the Post-Lab Assessment on Page 5.16!**