LABORATORY 8 – ASTRONOMY

This laboratory is divided into 3 parts.

Part 1 is to be done BEFORE you come to your weekly laboratory class.

Part 1, which also appears in your lab book, follows next. If there are internet links in Part 1, you can click on those links to go to that assigned web page.

For Part 1, you should write your answer(s) in the space(s) provided in your lab book and bring those answers to your lab class ... or submit your answers otherwise as requested.

In the abbreviated Parts 2 and 3 (below), only the internet link(s) appear in this on-line version. For the full exercises in Parts 2 and 3, see your lab book.
Part 1. Laboratory preparation

Before starting this laboratory, you are required to read Chapter 14 in your textbook, *The Sciences*, by Trefil and Hazen.

Activity 1-1 – Background reading

To prepare you for this laboratory, please read carefully the *Wikipedia* web page on Cepheid variable stars at the following link:

http://en.wikipedia.org/wiki/Cepheid_variable

Also, carefully read the textbook section on Cepheid variable stars in chapter 14 of your textbook.

Once you have read the *Wikipedia* page and related textbook section several times, answer the following 11 questions.
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Part 1. Laboratory preparation

Activity 1-1 – Background reading, continued.

Please give your answers based on the *Wikipedia* web page reading assignment.

1. What is a Cepheid variable star?

2. What two variables related to Cepheids have a strong, direct relationship? Also, give definitions of these variables.

3. Where does the term Cepheid come from?

4. Give a brief description of both classical Cepheid and type II Cepheid variable stars.
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Part 1. Laboratory preparation

Activity 1-1 – Background reading, continued.

5. When was the first classical Cepheid variable star discovered and by whom? What is this star’s name and where is it located?

6. What was Henrietta Leavitt’s discovery regarding Cepheid variable stars and their uses in astronomy?

7. What is a “standard candle” in astronomy? (In answering, also refer to your textbook, chapter 14, and information at this link - http://hyperphysics.phy-astr.gsu.edu/hbase/astro/standcand.html#c1.)
Part 1. Laboratory preparation

Activity 1-1 – Background reading, continued.

8. What was (c. 1912) and is now (c. 2015) the status of Cepheids as important standard candles for establishing the Galactic and extragalactic distance scales?

Based on textbook chapter 14, please answer these additional laboratory preparation questions.

9. What is luminosity?

10. What is apparent brightness?

11. What is absolute brightness?

► Write your answers IN YOUR LAB BOOK and bring them to your lab class or submit as your lab teacher asks.
NOTE – This is the end of the typically required pre-lab preparation work. After finishing this work, you are expected to look ahead at Parts 2 and 3 in your lab book before going to your weekly laboratory.

However, your lab teacher may require you to do additional pre-lab work beyond this point. If so, please do that assigned work and bring it to lab along with Part 1. All lab work should be written in your lab book.

The following abbreviated versions of Parts 2 and 3 of this laboratory contain the internet web links, if any, that are given in your lab book. These are clickable links.

THE FOLLOWING PAGES NOT COMPLETE VERSIONS OF PARTS 2 and 3 IN YOUR LAB BOOK. AGAIN, ONLY WEB LINKS FOLLOW.
Part 2. Laboratory activity

SEE YOUR LAB BOOK FOR ALL QUESTIONS.

HERE ARE THE CLICKABLE LINKS IN THIS PART -

http://hyperphysics.phy-astr.gsu.edu/hbase/astro/cepheid.html#c2


http://en.wikipedia.org/wiki/Absolute_magnitude

http://en.wikipedia.org/wiki/Luminosity


http://en.wikipedia.org/wiki/Magellanic_Clouds

http://www.1728.org/logrithm.htm

http://en.wikipedia.org/wiki/Parsec

CONTINUES →
Laboratory Activity

See your lab book for all questions.

Here are the clickable links in this part -

http://en.wikipedia.org/wiki/Light-year

http://hyperphysics.phy-astr.gsu.edu/hbase/astro/para.html#c1

http://en.wikipedia.org/wiki/Parallax

http://hyperphysics.phy-astr.gsu.edu/hbase/astro/hubble.html#c3
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Part 3. Laboratory retrospective activity

SEE YOUR LAB BOOK FOR ALL QUESTIONS.

NO CLICKABLE LINKS IN THIS PART.