

Name _____ Name _____

Class _____

Name _____ Name _____

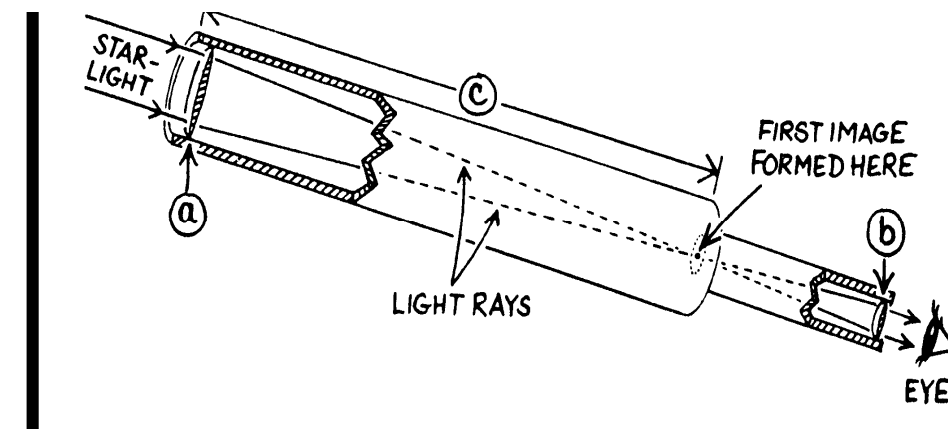
Date _____

Part 3: Lab Report –Telescopes

3.1 Types of Telescopes

A. Refracting Telescopes

Identify the following three parts of a **refracting telescope**: eyepiece, objective lens, & focal length.



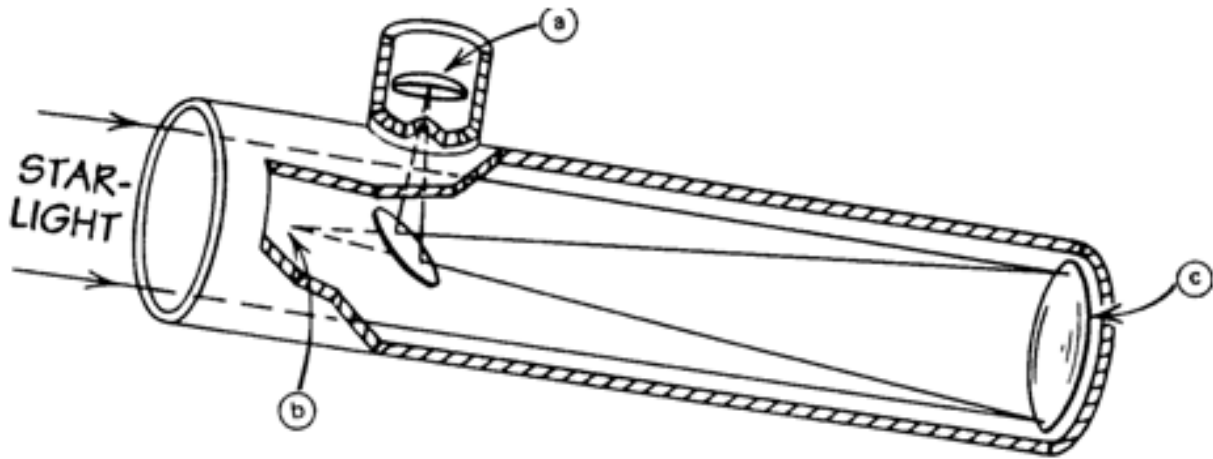
(a) _____

(b) _____

(c) _____

B. Newtonian Reflecting Telescopes

Identify the parts of a Newtonian **reflecting telescope**: Eyepiece, Primary Mirror, and Prime Focus.

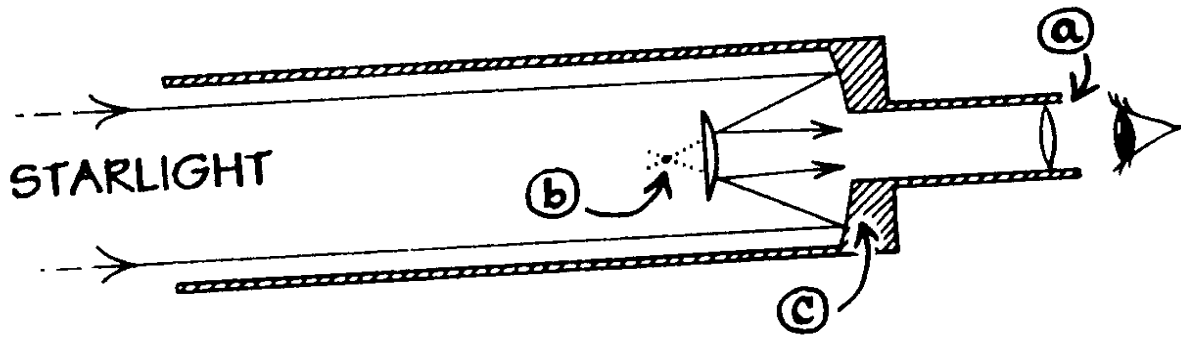


(a) _____

(b) _____

(c) _____

C. Cassegrain Reflecting Telescopes



Identify the parts of a Cassegrain **reflecting telescope**: Eyepiece, Primary Mirror, and Prime Focus.

(a) _____

(b) _____

(c) _____

D. Departmental Orion XT10 Telescope

Now each group must assemble a telescope, upon inspection initials will be provided by instructor as confirmation. _____

Based on the information given what type of telescopes does the Department own?

3.2 Telescopes around the World

Visit the following telescope web sites around the world, and answer the corresponding questions.

A. <http://www.ifa.hawaii.edu/mko/>

- a. Name: _____
- b. Location: _____
- c. How many working telescopes are near the summit of Mauna Kea? _____
- d. How many of these telescopes are radio telescopes? _____
- e. Name of the Radio Telescope(s): _____
- f. Does the Subaru Telescope contain a primary mirror? _____
- g. What is the most recent telescope added to Mauna Kea?
Name: _____ Year: _____
- h. Why is this location a unique astronomical observing site?

B. <http://www.stsci.edu>

- a. Name: _____
- b. How is this site related to the Hubble Space Telescope?

Go to the Hubble Images (on the left hand side of the web page) click on “Image Gallery”, and then click on “Image Tours”. Select the Tadpole Galaxy, and click on “click to PLAY MOVIE”, and answer questions “c”-“f” on the Tadpole Galaxy.

- c. Location: _____
- d. Distance from Earth: _____
- e. Size: _____
- f. What gave the galaxy its distorted shape?

- g. What type of telescope is the Hubble Telescope? (Optical, radio, gamma, etc.)

C. <http://www.keckobservatory.org/>

- a. Name: _____
- b. Location: _____
- c. What type of telescopes are these (infrared, optical, radio, etc.)? _____
- d. What is the diameter of the primary mirrors inside the telescopes? _____
- e. Does the facility use remote observing? _____

D. <http://www.eso.org/>

- a. Name: _____
- b. Name at least three countries that support the ESO.

- c. What does VLT stand for? _____
- d. What type of Telescope is VLT? _____
- e. Where is the VLT located? _____
- f. What makes the VLT an important telescope?

E. <http://www.naic.edu>

- a. Name: _____
- b. Location: _____
- c. What type of telescope is it? _____
- d. What makes the telescope at the Arecibo Observatory important?

F. <http://chandra.harvard.edu>

- a. Name: _____
- b. Location (of the telescope itself): _____
- c. What type of telescope is it? _____

G. <http://www.as.utexas.edu/mcdonald/mcdonald.html>

- a. Name: _____
- b. Location: _____

Please list Research Telescopes located at this site, and state if these telescopes are optical, radio, x-ray, or infrared.

- c. _____
- d. _____
- e. _____
- f. _____

3.3 Starry Night Software

Make sure your horizon is turned on, and that your home location is “Near McAllen, United States”. Additionally you may also find it useful to activate the viewing of:

- Constellation Boundaries;
- Constellation “Stick Figures”;
- Constellation Labels;
- Planets; and
- Planet Labels.

It may also be useful to note that when you place the mouse cursor on an astronomical object in Starry Night, information about this object will appear on screen.

A. Set the date to March 18, 2006.

What time will the constellation Orion begin to rise? _____

What time will it being to set? _____

Will it rise in the east or the west? _____

B. Set the date to April 24, 2006.

What time will the constellation Orion begin to rise? _____

What time will it being to set? _____

C. Set the date to June 25, 2006.

What time will the constellation Orion begin to rise? _____

What time will it being to set? _____

D. Set the date to June 21, 2006 and the time to 9:40 pm.

What planet(s) are visible in the night sky when facing west?

What planet(s) are visible in the night sky when facing South East?

E. In what constellation in the Moon on the date of June 30, 2006 at 10:00 pm?

F. What phase of the moon is visible on July 4, 2006 at 10:00 pm? _____

Rise time: _____

Set time: _____

Age of the Moon: _____ days

What planet can be seen above the moon? _____

G. Set the date to November 12, 2006 at 10:47:00 pm.

Change the light pollution setting to “Small City Light Pollution” (by right clicking with the mouse). Find the constellation Orion in the East, notice what stars are visible with the naked eye, and now zoom in until you are at 7 degrees, what becomes visible?

When you are done please do not save any changes.