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# Ay 20 – Basic Astronomy

## Lab Project Outline

Project A – 5 points

Project B – 5 points

Project C – 5 points

# Ay 20 Lab Project

## (A) LEARN TO OBSERVE WITH A BACKYARD TELESCOPE

### Objectives:

- Public outreach programs
- If you ever own a small telescope...

### Observing Plan:

- Use an 8 inch Cassegrain telescope with equatorial mount
- Learning and practice sessions for 2 to 3 nights
- You're welcome to attend any number of observing nights

### Grading:

- Everyone must be present at the pointing test
- Easy 5 points!



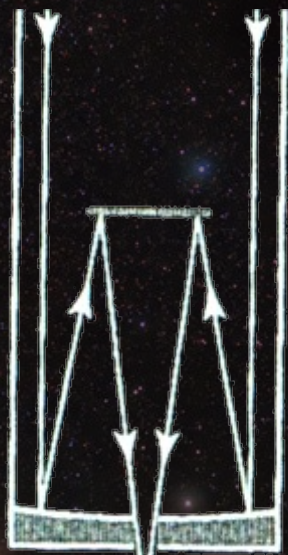
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# Project A

## Popular Reflecting Telescopes

Newtonian

Cassegrain



## Telescopes Mounts

Equatorial

Alt-Azimuth



# Ay 20 Lab Project

## (B) FINDING THE ORBITAL PERIOD OF MOON AROUND THE EARTH

### Objectives:

- Obtain scientific results using observations

### Plan:

- Watch the moon move with respect to background stars

### Grading:

- Each student must submit a 1 - 2 page report of your analysis



# Ay 20 Lab Project

## (C) PREPARE AN OBSERVING PROPOSAL FOR PALOMAR 60 AND MAKE COLOR IMAGES

### Objectives:

- Learn how to prepare a simple observing proposal
- Work with research-quality images
- Make pretty-looking pictures

### Working Plan:

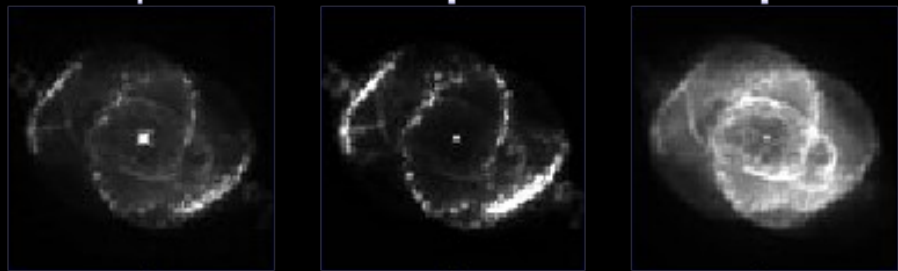
- Work in groups of 3 students
- Each group selects one interesting target to observe with the P60
- Prepare an observing proposal (1 per group)
- I observe the proposed objects and give images to respective groups
- Each group prepares a color image using DS9 software



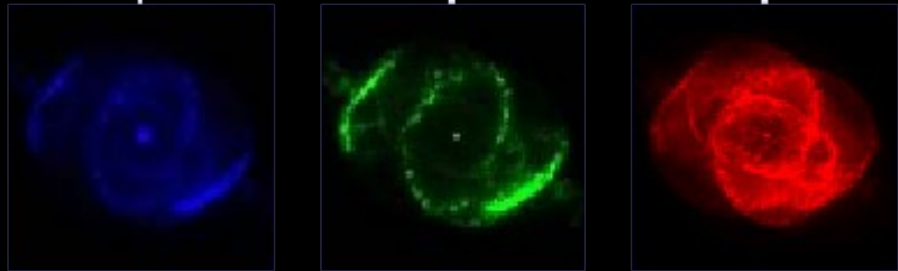
# Project C



Black-and-White Images Taken of Filtered Light



Colors Assigned to Black-and-White Images



Final Image After Combining the Colored Images



<http://www.astro.caltech.edu/palomar/astrophotos.html>





# Horsehead Nebula



Spiral Galaxy M33

M45  
The Pleiades

