



Teacher Notes - How Old Are the Jewels?

1. In addition to copies of materials in this website, students will need markers and rulers with centimeters marked. If you have a class set of hand lenses, they may be helpful to see and classify the smaller stars on the print, depending on the quality of the print.
2. Students should be aware of: a) stellar distances, b) stellar color and how it relates to temperature, and c) the relationship between stellar brightness and distance, before they do this activity.
3. Prints can be reused if they are laminated (note: avoid wax printers whose output can not be laminated). After the Jewelbox image is laminated, use scissors to separate the StarGauge from the image itself.
4. The size of the data square can be varied according to the attention span of your students. Some teachers have suggested that smaller squares may suffice for younger students, although the limited sample size may result in a more difficult determination of age. To get a better feeling of looking through a telescope at the cluster, students can draw 8 or 10 cm diameter circles on the print instead of squares.
5. Students will usually start slowly in their measuring but will quickly move through the stars in their square. A fun option is to assign student groups different sections of the cluster to plot. Or have a few groups do 5 cm squares along the edges for the sake of comparison with other groups' results.
6. The Jewelbox is a young cluster. It's age is only about 12 million years.
7. It may increase students' interest to show slides of other star clusters either before or after the activity. You can include open (otherwise known as "galactic") clusters and globular clusters if you like. Also, a map of Southern constellations to point out Crux and the location of the Jewelbox helps to orient students.
8. There are some obvious problems in the color designations for the stellar classes on the StarGauge. In the end, however, almost all groups should successfully arrive at the correct age of the Jewelbox.
9. You might want to examine other clusters, like the Pleiades or Hyades. A good color printer can be used to create good enough copies for a follow-up lab.
10. The real name of the StarGauge is "flyspanker." It has been suggested by many teachers that an alternate name be formulated to prevent the snickers and other remarks that may erupt when students hear this term.
11. Suggestions or comments about this activity should be sent to outreach@noao.edu.

[[Jewels of the Night Home Page](#)]

National Optical Astronomy Observatories, 950 North Cherry Avenue, P.O. Box 26732,
Tucson, Arizona 85726, Phone: (520) 318-8000, Fax: (520) 318-8360



Page created and maintained by outreach@noao.edu



[NOAO](#) > [Outreach](#) > [Education](#) > > [Jewels of the Night](#) > [Teacher Notes](#)

