Reach for the Stars, Division B **Name _____**

1999 Colorado Regional Exam **The Sun: Distance vs. Size**

Materials required: Metric ruler plus four solar photos obtained from the YPOP web site: <http://solar.physics.montana.edu/YPOP> To locate the photos, follow these links: 1. The Solar Classroom, 2. The Earth's Orbit, 3. Pictures of the Sun. Opening the TIF Images from their current location works well.

Background information: The solar photos were taken by the Yohkoh Spacecraft at four different times during the year. From these photos, the effect of distance from the Sun upon Earth's seasonal temperatures and the shape of its orbit can be inferred.

Date Photo was Taken	Season Photo was Taken	Photo Diameter in mm
01/23/92		
04/22/92		
07/21/92		
10/19/92		

1. In column two, enter the name of the season during which each photo was taken.

2. Measure and record in column three the scaled equatorial diameter of the Sun, to the nearest 0.5 mm, for each photo. Be certain to measure directly across the equator.

3. Explain why the size of the Sun appears to vary throughout the year. _____

   _____

4. From the data you have gathered during this activity, what may be inferred about the shape of Earth's orbit about the Sun? _____

   Explain. _____

   _____

5. During what season is the Sun closest to Earth? _____

6. From prior knowledge, what two motions have the greatest influence upon Earth's seasonal temperatures? _____ and _____

7. When measuring the diameter of the Sun, why is it crucial that all measurements be taken across the very same location [we measured across the Sun's diameter] rather than at different locations? _____

   _____

This activity has been adapted from the YPOP lesson – "The Solar Classroom"