

PROJECT 1 GRADING RUBRIC

Points will be assigned to each project according to the following rubric. Your score on the project will be the percentage of points you receive, out of the maximum possible number of points (excluding the bonus points).

Setup

- 1 point for describing your gnomon, including its height
- 1 point for explaining how you oriented yourself
- 1 point for explaining how you measured shadow lengths
- 1 point for dates and times of both measurements

Altitudes

- 2 points for correct altitude values at two different times
- 2 points for explaining how you determined altitude

Azimuth

- 2 points for correct azimuth values at two different times
- 2 points for explaining how you determined azimuth

Comparison

- 1 point for a comparison of the two measurements
- 1 point for commentary on how the Sun moves across the sky between these times

Verify North

- 1 point for explaining how you verified the direction of the North arrow in the simulation

Latitudes

- 3 points for specifying the correct hemisphere for all three locations
- 3 points for determining the latitude of all three locations
- 2 points for explaining how you found the latitudes

Longitudes

- 3 points for determining the longitude of all three locations
- 2 points for explaining how you found the longitudes

Radius of Planet

- 1 point for correct radius
- 1 point for explanation of how you determined the radius

Local Noon

- 3 points for correct time of local noon at Locations 1, 2, and 3
- 1 point for explanation of how you determined the time of local noon

Length of Day

- 1 point for the correct length of the solar day, in hours

- 1 point for explaining how you determined the length of the solar day

Length of Year

- 1 point for the correct length of the tropical year, in solar days
- 1 point for explaining how you determined the length of the tropical year

Obliquity

- 1 point for the correct value of the obliquity (tilt of equator relative to ecliptic)
- 1 point for explaining how you determined the obliquity

Solstices and Equinoxes

- 4 points for the correct day of the year for both solstices and both equinoxes
- 4 points for explaining how you determined these days

Arctic/Antarctic Circles

- 1 point for the correct latitudes of the Arctic and Antarctic circles
- 1 point for explaining how you determined these latitudes

Tropics

- 1 point for the correct range of latitudes for the tropics
- 1 point for explaining how you determined this range of latitudes

Bonus

- 1 bonus point for clearly describing the problem with the armillary sphere
- 1 bonus point for explaining in detail how to fix the problem

Grammar and Spelling (up to 5 points)

- 5** The paper is completely free of any errors in grammar or incorrect spelling.
- 3** There are several grammar and spelling errors scattered throughout the paper.
- 1** The paper is filled with errors in spelling and grammar, to the extent that it is difficult to read.