Read the passage. Then answer each question.

Space Based Astronomy

If you go to the country, far from city lights, you can see about 3,000 stars on a clear night. If your eyes were bigger, you could see many more stars. With a pair of binoculars, an optical device that effectively enlarges the pupil of your eye by about 30 times, the number of stars you can see increases to the tens of thousands. With a medium-sized telescope with a light-collecting mirror 30 centimeters in diameter, you can see hundreds of thousands of stars. With a large observatory telescope, millions of stars become visible.

It would seem that when it comes to observing the universe, the larger the instrument, the better. This is true up to a point, but there are limits—limits not imposed by technology but by nature itself.

Surrounding Earth is a life-sustaining atmosphere that stands between our eyes and the radiation that falls upon Earth from outer space. This radiation is comprised of a very broad spectrum of energies and wavelengths. Collectively, they are referred to as the electromagnetic spectrum. They range from radio and microwave radiation on the low energy (long wavelength) end through infrared, visible, ultraviolet, and x-rays to gamma rays on the high energy (short wavelength) end. Gases and other components of our atmosphere distort, filter, and block most of this radiation permitting only a partial picture, primarily visible radiation and some radio waves, to reach Earth's surface. Although many things can be learned about our universe by studying it from the surface of Earth, the story is incomplete. To view celestial objects over the whole range of the electromagnetic spectrum, it is essential to climb above the atmosphere into outer space.

From its earliest days, the National Aeronautics and Space Administration (NASA) has used the emerging technology of rockets to explore the universe. By lofting telescopes and other scientific instruments above the veil of Earth's atmosphere, NASA has

delivered a treasure house of information to astronomers, leading them to rethink their most fundamental ideas about what the universe is, how it came to be, how it functions, and what it is likely to become. [Via NASA Educational Technology Services]

Answer the Questions:

1. Why do you think city lights would prevent you from seeing stars?

2. What do you need to see hundreds of thousands of stars?

3. What does the Earth's atmosphere do to sustain life on Earth?

4. What do you think the phrase treasure house is synonymous with in this passage?

5. While the passage never directly provides a definition for space based astronomy, what do you think it is?