

The Study of the Universe

Question 1 .

Which of the following statements about the Sun is true?

- ☐ A. The Sun is one of very few stars in the Universe.
- ☐ B. The Sun is the only source of light in the Universe.
- ☐ C. The Sun is the only star in the Universe.
- ☐ D. The Sun is one of many stars in the Universe.

Question 2 .

Until 1990, the most powerful telescopes were placed on mountaintops. In 1990, the Hubble Space Telescope, shown below, was launched into space.

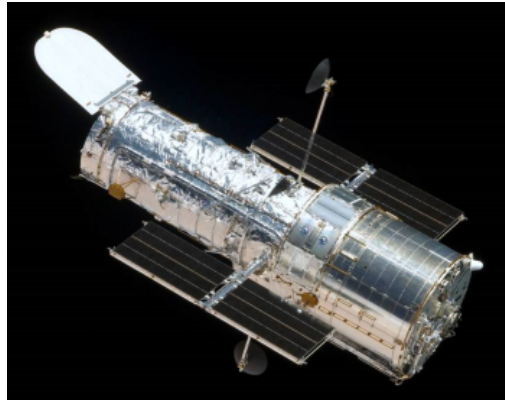


Image courtesy of NASA

Which of these is one reason that having the Hubble telescope in space is better than having a telescope on a mountaintop?

- ☐ A. The Hubble telescope is easier to repair.
- ☐ B. There is more light in space for better photos.
- ☐ C. Clouds do not block the view of the Hubble telescope.
- ☐ D. It is harder to get to telescopes on mountaintops.

Question 3 .

How does the planet Venus look to a person standing on the Earth?

- ☐ A. Venus looks like a star.
- ☐ B. Venus looks like a small moon.
- ☐ C. Venus cannot be seen from Earth.
- ☐ D. Venus is bright like the Sun.

Question 4 .

Which of these is true about stars and planets?

- ☐ A. A planet is contained inside a star.
- ☐ B. A star is contained inside a planet.
- ☐ C. A star revolves around a planet.
- ☐ D. A planet revolves around a star.

Question 5 .

How is the Sun different from all other stars?

- ☐ A. The Sun is larger than all other stars.
- ☐ B. The Sun is brighter than all other stars.
- ☐ C. The Sun is hotter than all other stars.
- ☐ D. The Sun is closer than all other stars.

Question 6 .



What kinds of technology have helped scientists learn about the Earth and its moon?

- ☐ A. space missions
- ☐ B. telescopes
- ☐ C. space probes
- ☐ D. all of these

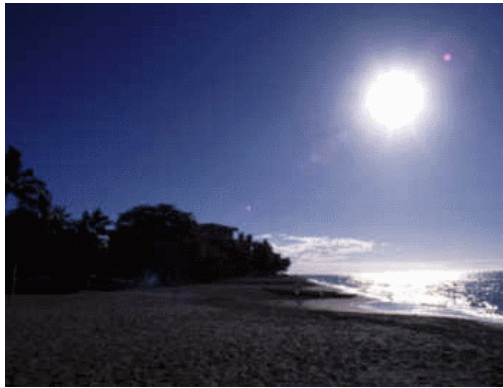
Question 7 .

Which of these is true about the size of the Sun?

- ☐ A. The Sun is much smaller than Jupiter.
- ☐ B. The Sun is about the same size as Earth.
- ☐ C. The Sun is much larger than Earth.
- ☐ D. The Sun is about the same size as Jupiter.

Question 8 .

There are many billions of stars in the Universe. Some of these stars are much, much larger than the Sun.



Why don't stars that are larger than the Sun completely light up the Earth's sky?

- ☐ A. These stars are colder than the Sun.
- ☐ B. These stars are dark on the side that faces the Earth.
- ☐ C. These stars don't give off as much light as the Sun.
- ☐ D. These stars are much farther away than the Sun is.

Question 9 .

Why do some of the planets in the Solar System appear to be brighter than some stars in the night sky?

- ☐ A. The planets that appear to be brighter are much closer than the stars they outshine.
- ☐ B. The planets that appear to be brighter are hotter than the stars they outshine.
- ☐ C. The planets that appear to be brighter give off more light than the stars they outshine.
- ☐ D. The planets that appear to be brighter are bigger than the stars they outshine.

Question 10 .

The table below shows how far four different stars are from the Earth. Distance is shown in light years. The more light years a star is away from Earth, the farther away it is.

Star	Distance from Earth (light years)
Star 1	18
Star 2	14
Star 3	21
Star 4	25

If all of the stars are the same size, which star will look brightest from the Earth?

- ☐ A. star 1
- ☐ B. star 4
- ☐ C. star 2
- ☐ D. star 3

Question 11 .

Why do other stars appear so much dimmer than the Sun?

- ☐ A. All the other stars are much smaller than the Sun.
- ☐ B. The Sun is much hotter than all the other stars.
- ☐ C. The Sun is much brighter than all the other stars.
- ☐ D. All the other stars are much farther away from us than the Sun.

Question 12 .

Drew likes to watch the stars. He has noticed one star which seems to move differently than the other stars. A week ago it was closest to one star and now it is closest to a different star.

Why might Drew's star be moving differently than other stars?

- ☐ A. The star is really the Moon.
- ☐ B. The star is bigger than other stars.
- ☐ C. The star is further away than other stars.
- ☐ D. The star is really a planet.

Question 13 .

Many technological advances have helped people perform scientific studies. An important area of science that has been influenced by technology is space study. Without the invention of special equipment, much of what is known about space would not be known today.

Which of the following inventions has contributed to the study of space?

- ☐ A. satellites
- ☐ B. space crafts
- ☐ C. telescopes
- ☐ D. all of these

Question 14 .

Compared to the other stars in the galaxy, the Sun is an average sized star.



Why does the Sun appear larger than other stars?

- ☐ A. The Sun is colder than all of the other stars.
- ☐ B. The Sun is the closest star to the Earth.
- ☐ C. The Sun is dimmer than all of the other stars.
- ☐ D. The Sun is the farthest star from the Earth.

Question 15 .

The table below shows the size of four different stars that can be seen in the night sky.

Star	Width of Star (millions of km)
Star 1	8
Star 2	12
Star 3	5
Star 4	15

If all of the stars are the same distance from Earth, which star will look brightest in the night sky?

- ☐ A. star 4
- ☐ B. star 3
- ☐ C. star 2
- ☐ D. star 1

Question 16 .

There are many objects that can be seen in space. There are more _____ in the night sky than _____.

- ☐ A. Suns; stars
- ☐ B. planets; stars
- ☐ C. stars; planets
- ☐ D. Earths; Moons

Question 17 .

Kyle was riding in the car at night. He noticed that the headlights of other cars seemed to get larger as they came closer to him.



How are the headlights of the cars similar to the stars and the Sun?

- ☐ A. The Sun is smaller than all of the other stars in the galaxy.
- ☐ B. The Sun appears smaller because it is closer to Earth.
- ☐ C. The Sun appears larger because it is closer to Earth.
- ☐ D. The Sun is larger than all of the other stars in the galaxy.

Question 18 .

Planets and stars look very similar. How can people on Earth tell that planets and stars are different?

- ☐ A. Planets move in the sky, but stars are always fixed.
- ☐ B. There is no way to tell that planets and stars are different.
- ☐ C. Planets never move, but stars rise and set.
- ☐ D. Over time, planets and stars move differently in the sky.

Question 19 .

All of the stars in the sky, except for one, are so far away that they look like small points of light.

The one star that does not appear as a small point of light is called _____.

- ☐ A. Venus
- ☐ B. Mercury
- ☐ C. Andromeda
- ☐ D. the Sun

Question 20 .

Which of these is true about the temperature of the Sun?

- ☐ A. The Sun is much cooler than Neptune.
- ☐ B. The Sun is about the same temperature as Jupiter.
- ☐ C. The Sun is about the same temperature as Mercury.
- ☐ D. The Sun is much hotter than Venus.

Question 21 .

Proxima Centauri is the closest star to the Earth other than the Sun. Proxima Centauri is so dim that it cannot be seen from Earth without a telescope. Other stars that are much farther away can be seen without a telescope.

Which of these is most likely true about the stars that are farther away from Earth than Proxima Centauri is but that can still be seen without a telescope?

- ☐ A. They are colder than Proxima Centauri.
- ☐ B. They are bigger than Proxima Centauri.
- ☐ C. They burn less bright than Proxima Centauri.
- ☐ D. They are closer to the Sun than Proxima Centauri is.

Question 22 .

The Sun is a star. Scientists have explained that the reason the Sun looks larger than other stars is that the Earth is much closer to the Sun than to other stars.

Lena has noticed some of the stars in the night sky look smaller than others.

What is the best prediction that Lena could make about the stars?

- ☐ A. The stars that look largest are closest to the Earth.
- ☐ B. The stars that look smallest are closest to the Earth.
- ☐ C. All stars are the same distance from the Earth.
- ☐ D. The stars that look largest are moving toward the Earth.

Question 23 .

Charlie looks into the sky with his telescope. One of the stars he sees is a small dot of light named Vega.



Vega is about twice as wide as the Sun. Why does Vega look so much smaller than the Sun?

- ☐ A. It is much farther away.
- ☐ B. It isn't as hot.
- ☐ C. It doesn't give off as much light.
- ☐ D. Its height is much smaller.

Question 24 .

Why do the planets appear in different locations in the night sky while the pattern of stars in a constellation stays the same?

- ☐ A. The stars orbit the Sun, but the planets do not.
- ☐ B. The planets give off their own light, but the stars do not.
- ☐ C. The stars give off their own light, but the planets do not.
- ☐ D. The planets orbit the Sun, but the stars do not.

Question 25 .

An astronomer is studying two stars that have about the same size and brightness. From the Earth, one of the stars appears very bright in the night sky. The other star appears very faint and dim.



Why does one star appear to be brighter than the other?

- ☐ A. The Earth is farther from the brighter star.
- ☐ B. The Earth is moving toward the dimmer star.
- ☐ C. The Earth is closer to the brighter star.
- ☐ D. The Earth is moving toward the brighter star.

Question 26 .

Which of the following is true about the size of the Sun?

- ☐ A. The Sun is an average-sized star.
- ☐ B. The Sun is much larger than an average star.
- ☐ C. Sometimes the Sun is larger than an average star; sometimes it is smaller than an average star.
- ☐ D. The Sun is much smaller than an average star.

Question 27 .

Colin was driving to a football field. The stadium lights at the field are large and very bright. When Colin was still far away from the field, he could see the stadium lights, but they appeared very small.

How are the lights at the stadium similar to stars in the sky?

- ☐ A. Stars actually grow bigger as you move closer to them.
- ☐ B. Stars appear large because they are very far away.
- ☐ C. Stars appear to be small because they are very far away.
- ☐ D. Stars cannot be seen from far away.

Question 28 .

Huygens is a space probe that landed on a moon of Saturn, called Titan, in 2005. A picture of Huygens on Titan is shown below.

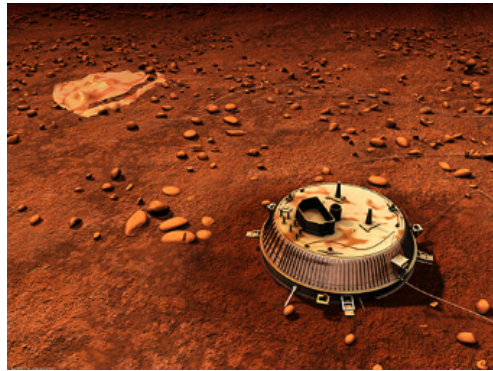


Image courtesy of European Space Agency

While on Titan, Huygens used special equipment to collect information about the physical properties of Titan's surface and atmosphere.

What is true about space probes, like Huygens, and space telescopes?

- ☐ A. Both space probes and space telescopes can collect pictures and other types of data.
- ☐ B. Space probes can only take pictures, but space telescopes can collect pictures and other types of data.
- ☐ C. Space telescopes can only take pictures, but space probes can collect pictures and other types of data.
- ☐ D. Both space probes and space telescopes can only take pictures.

Question 29 .

Which of these best describes stars and planets?

- ☐ A. Stars and planets both reflect light.
- ☐ B. Stars reflect light and planets give off light.
- ☐ C. Stars give off light and planets reflect light.
- ☐ D. Stars and planets both give off light.

Question 30 .

Mars rovers use cameras and other equipment to collect information about Mars. The Mars rover named Curiosity is shown on the surface of Mars in the picture below.



Image courtesy of NASA

The Hubble telescope is a space telescope that can take pictures of distant objects.

What information could be collected by a Mars rover but not by the Hubble telescope?

- ☐ A. what the rocks on Mars are made of
- ☐ B. what the surface of Mars looks like
- ☐ C. the size of Mars
- ☐ D. the size of the Universe