

Name:

Date:

Period:

Understanding the Universe: Guiding Questions

Go to the Discovery School website at <http://school.discovery.com/schooladventures/universe/index.html>. From there, navigate through the associated pages and use what you learn to answer the following questions.

Start with the link to "It's Awesome!" and go to the "Cosmic Calendar"

1. Scientists theorize that the Big Bang occurred approximately _____ years ago.
2. What evidence of the Big Bang can still be seen today?
3. According to the timeline, Earth and the other parts of our solar system are approximately _____ years old.
4. If the life span of the universe could be compressed into just one year, at what point during the year would modern humans appear?
5. Bacteria are single celled organisms. At what point during the year do they first appear?

Go back to "It's Awesome" and then proceed to "Light Years"

6. It would take you _____ to reach the sun moving at 60mph.
7. It would take a space shuttle _____ to travel one light year.
8. It takes light from the moon _____ to reach Earth.
9. Why can it be said that looking at objects in space is like looking back in time?
10. How many light years away is the nearest star (How long does its light take to reach us?)

Now click on "Galaxy Tour" and go through the 6 tour pages.

11. Which one of the following statements is most accurate:
 - a. Our Solar System is far away from the Milky Way Galaxy
 - b. Our Solar System is inside the Milky Way Galaxy
 - c. The Milky Way Galaxy is inside our Solar System.
12. The three types of galaxies are _____, _____ and _____.
13. The nearest galaxy to us is _____, and its light takes _____ years to reach us.

Name:

Date:

Period:

14. The _____ galaxies are evidence that the gravity from two galaxies can cause them to pull toward each other.
15. How does looking at deep-field images from the Hubble telescope help us understand the origins of the universe?

Stargazers: Match the Stargazer with the description of their astronomical contributions.

____ Nicolaus Copernicus 1473-1543		A.	made some astonishing discoveries, including mountains and valleys on the moon, the phases of Venus, and the four big moons orbiting Jupiter.
____ Johannes Kepler 1571-1630		B.	showed that gravity is actually the warping of space by matter. One consequence is that light will follow a curved path when it passes a massive body.
____ Galileo Galilei 1564-1642		C.	proposed that the universe was compressed into a tiny object which he called the "cosmic egg." This cosmic egg would have exploded.
____ Isaac Newton 1642-1727		D.	discovered a universe of galaxies outside the Milky Way and showed that the entire universe is expanding.
____ Albert Einstein 1879-1955		E.	argued that the Earth was not the center of the universe but was one of the planets that revolves around the sun.
____ Georges Lemaître 1894-1966		F.	stated that planets move in elliptical orbits around the sun, described how a planet travels faster when it orbits closer to the sun and described how a planet's revolution increases with the size of their orbits.
____ Edwin Hubble 1889-1953		G.	described a force of attraction between any two bodies in the universe. This force increases in proportion to the mass of each body and decreases in proportion to the square of the distance between them.