**Name** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_

**Essential Question: What evidence do scientists use to explain the nature and origin of the universe?**

**Directions:** Login to the DE techbook using your Google username and password. Open the Earth and Space Science book to the “Universe” unit, “Understanding the Universe” chapter. As you read the text and watch any videos under the “EXPLORE” tab, answer each of the following questions:

1. What form of energy do scientists study in order to understand how the universe began?
2. Define the **steady state theory** and provide at least one reason it no longer explains how the universe is behaving.
3. Name the theory that is now generally accepted by scientists to explain the formation of the universe. Explain why this theory replaced the steady state theory. Include the term singularity in your answer.
4. A light year is a unit used to describe the age of events that took place in the formation of the universe. It is equal to the distance that light travels in one year.

1 light year = 9.46 X 1012 km  
 (9,460,000,000,000 km)

1 km = 0.621 mile

How many miles is one **light year**? Show an equation, a conversion factor(s), and your answer with the correct units.

1. Describe the events that occurred;
   1. In the first few seconds of the Big Bang.
   2. In the first three minutes of the Big Bang.
2. Explain why hydrogen (H) and helium (He) are the most abundant elements in the universe.

7. Summarize (1 or 2 sentences) three (3) examples of evidence that the universe began with the Big Bang.

a.

b.

c.