**Unit 2 Overview: The Big Bang, and the Evolution of the Universe**

**Earth and Space Science, Mr Lanik**

The following overview is designed to guide your thinking as you work to develop an appreciation for, and understanding of, the concepts and processes related to the creation and evolution of our Universe, from its birth to the creation of the Solar System. Please read each question carefully, and then use clear, complete thoughts to express your answers.

***BHP Section 2.0 videos, Section 2.1 “Why Cosmic Evolution Matters”, Section 2 “Other Materials” video “What emerged from the Big Bang?”***

1. According to current scientific understanding:

a. When did the Big Bang event happen?

b. What caused the Big Bang to happen (why did it happen)?

2. Briefly describe the 1st second of the Universe after the Big Bang.

a. What forms of matter were created?

b. What (besides matter) appeared in the Universe within the 1st second after the Big Bang?

3. Describe the important characteristics of the Universe during its first 380,000 years of existence.

4. Briefly describe the two most important pieces of scientific evidence that our Universe began with the Big Bang:

a.

b.

***BHP Section 3.0 videos “How were stars formed?” and “Big History of Everything H2” , Section 3.1 videos “Threshold 3: New Elements” and “Why star stuff matters”, Section 3 Other Materials video Elements: A Brief Big History***

5. Briefly describe how the first stars formed in our Universe.

6. Identify two ways in which the creation of the first stars changed our Universe.

a.

b.

7. When (approximately) in our Universe’s history did the first stars form?

8. When (approximately) did the first heavy atomic elements first appear in our Universe?

9. Briefly describe how the conditions needed to produce atoms of silver (Ag) differ from those needed to produce helium (He).

10. In what significant way did our Universe begin to change as the first generation of stars began to get old and die?

***Section 4.0 videos “Threshold 4: Earth and the Solar System” and “How did Earth and the Solar System form?”, Section 4 Other Materials videos “Earth: A brief big history” and “Metals: A brief big history”***

11. When did our Solar System form?

12. What scientific evidence exists to support this Solar System age?

13. What kinds of materials did our Solar System form out of? Where did these materials come from (how were they produced)?

14. Briefly describe the key steps in the process by which our Solar System formed.