ESS 100 Name: _____

Quiz: Solar System Formation

1. Which of the following represents the correct sequence of some events in the solar system's formation? The order should be first (on the left) to last (on the right).
   a. Shrinking, Spinning Faster, Birth of Sun, Formation of Planets
   b. Spinning Faster, Formation of Planets, Birth of Sun, Shrinking
   c. Birth of Sun, Spinning Faster, Shrinking, Formation of Planets,
   d. Formation of Planets, Spinning Faster, Birth of Sun, Shrinking

2. In the earliest stage of our Solar System's life, it was not called a Solar System. It was a cloud of dust and gas called…
   a. Galaxy b. Supernova c. Comet d. Nebula e. Star Cluster

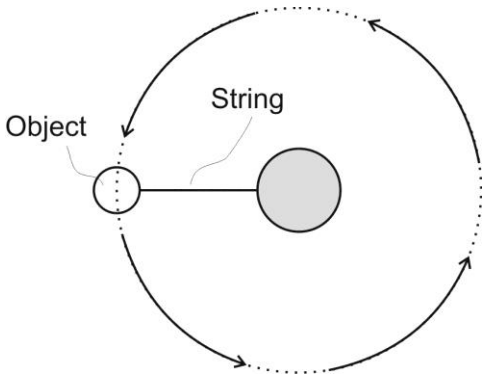
3. How would you describe our solar system's motion during its very earliest stages, when it was still just a cloud of dust and ice?
   a. Motionless b. Slowly rotating c. Rapidly Rotating d. Moving away from the sun

4. What was the reason for the solar system first beginning to heat up?
   a. Rapid movement b. Melting Ice c. Starlight d. Compression (squeezing)

5. At some point in the solar system's formation, it began to shrink. What caused it to shrink?
   a. Heat b. Gravity c. Momentum (inertia) d. Motion e. Cold Temperature

6. Our Earth is orbiting the Sun. This orbit represents a balance; we do not fly away from the sun, and we do not fall into the sun. What is preventing us from flying away from the sun?
   a. Gravity b. Momentum/inertia
   c. Our magnetic field d. Attractions between Protons and Electrons

7. What is preventing us from falling into the sun?
   a. Gravity b. Momentum/inertia
   c. Our magnetic field d. Attractions between Protons and Electrons



8. The diagram on the right shows an orbiting "object." If the string breaks at the position shown in the picture, in which direction will the object travel?
   a. ↑ b. ↓ c. ← d. →

9. If the Earth were suddenly released from its orbit around the sun, what type of path would it follow?
   a. A wavy line b. A spiral c. A U-turn d. A straight line

10. When the speed of our Solar System's rotation first began to increase, what shape did the solar system become?
    a. Sphere b. Box c. Triangular Prism d. Oval e. Disk

11. Nuclear Fusion is the process that powers our sun. In order for nuclear fusion to begin in our solar system, what type of environment was necessary?
    a. Low Pressure and Cold b. High Pressure and Heat
    c. Rapid Spinning d. Plenty of Rock and Metal

12. In the equation, $E=mc^2$, the letter "c" represents:
a. speed of light b. earth's crust c. mass d. cooling

13. 4.6 Billion years ago, the solar system was primarily dust and ice. The ice is often referred to as "frozen gases."

a. The dust was made of two kinds of materials. List <u>one</u> of those materials.

b. The ice was made primarily of two elements (kinds of materials). List <u>one</u> of those elements.

14. Nuclear fusion powers our sun. What is the main fuel that our sun uses in the nuclear fusion process?

15. What material is produced when the fuel from #14 fuses in our sun?

16. In our solar system, there are terrestrial ("rocky") planets, and there are gas giants. The gas giants have very thick gas layers, while the rocky planets have relatively thin atmospheres.

a. Where are the "rocky" planets in our solar system?

b. Explain why the rocky planets do not have large gas layers.