Archaeoastronomer: _____

Date: _____

Dawn of Sun Science Answer Key

1. **Among the Inca, Maya and Aztec ancient cultures which one do you think had observed sunspots? What is the evidence?**
   According to Aztec myth, the god who sacrificed himself to become the Sun had a spotted, pimply face, which suggests that the Aztecs had observed spots on the Sun.

2. **Why did most ancient cultures revere the Sun as a god?**
   People in agrarian societies could see that their crops grew and flourished, or failed, according to whether there was the right amount of sunlight. They probably also learned to correlate the appearance of the Sun in certain positions in the sky with generally warmer or colder weather, which also affected their food supply and when they planned to plant and harvest. The Sun's influence on the weather, and seasons, may have been interpreted as godlike abilities.

3. **Who made the oldest known Eurasian records of the surface of the Sun?**
   There are some early references to sunspots in the writings of Greek philosophers from the fourth century BCE. Chinese astronomers observed cycles of small dark blotches on the Sun as early as 28 BCE.

4. **Why did the idea of blemishes or spots on the Sun puzzle the Europeans of the 17th century?**
   People continued to believe, as Aristotle had assumed, that the heavens must be "perfect" and spots on the Sun seemed to them like an imperfection in God's creation.

5. **What kind of radiation from the Sun can severely burn your eyes and permanently damage your eyesight?**
   Ultraviolet light, which penetrates the atmosphere in sufficient quantities to burn the retina.

6. **Why is the year 1608 important for astronomy?**
   This was the year that the telescope was introduced and first used to look at the skies.

7. **Why did Galileo conclude that sunspots must be on the surface of the Sun?**
   He observed that the spots seem to flatten as they get near the Sun's edge. He deduced this was an effect of foreshortening as the spots rotated with the solar surface.

8. **Who argued that the spots must be planets or moons orbiting the Sun? Why?**
   Christopher Schiener was another astronomer of Galileo's time. Schiener believed that spots on the Sun would be a sign of imperfection. Therefore he argued strongly that the blotches seen through telescopes must be planets or moons orbiting the Sun.

9. **Why did Galileo spend the last 8 years of his life under house arrest?**
   Galileo was arrested and charged with heresy for his publication of the Dialog, which supported the Copernican theory that the Sun is at the center of the solar system. He was considered so "dangerous" by the Catholic Church that he was imprisoned in his home and was not allowed to collaborate with others on scientific matters or to publish his ideas. (In fact he later recanted, or publicly withdrew, these beliefs in order to lessen his sentence. He also wanted very much to reconcile his science with his religious beliefs.)