SPACE-MISSIONS CHALLENGE QUESTIONS

1. When did a spacecraft first land on an asteroid, and how many craters did it find?

2. How old is the universe? (Hint: Check the Space Telescopes.)

3. When did comet dust arrive on Earth via spacecraft, and in which US state did it land?

4. For which of Jupiter’s moons have we found evidence of salt water below the surface?

5. What is the acidity (pH) of Martian soil, and does it have water and chemicals needed for life?

6. What spacecraft used the gravitational pull of the planet Jupiter to boost its speed to shorten its cruise time to Pluto, and when will the spacecraft get to Pluto?

7. What percentage of the universe is dark matter that we can’t see, but was estimated by detecting X-rays? (Hint: Check the Space Telescopes.)

8. Using infrared light, what was discovered at the core of the Milky Way galaxy? (Hint: Check the Space Telescopes.)

9. Which of Saturn’s moons is feeding water-ice particles into Saturn’s rings, and may have liquid water just beneath the surface?

10. How many years is a solar cycle, and what Sun-observing spacecraft has been in service observing the Sun for more than one solar cycle?

11. Does Venus have mostly volcanic craters or mostly impact craters, and what conclusion does that support about the geological age of its surface?

12. Which other rocky planet has a liquid metallic outer core and a magnetic field most similar to Earth’s?

Bonus Questions

a. What instrument was used to detect hydrogen, which could be evidence of water on the Moon, and on which spacecraft was it used?

b. On what body in the solar system would you likely find rain made of supercooled methane and ethane? (Hint: Check the Outer Solar System Missions.)

c. Which body in the solar system has more than seven active, currently erupting volcanoes, and what is causing them to erupt? (Hint: Check the Outer Solar System Missions.)