Pluto

By Sharon Fabian

[1] Sometimes what you don't know can be a lot more interesting than what you do know. Take Pluto, for instance.

[2] **What We Know**: Pluto is no bigger than the Earth's moon. Its gravity is about one-fifteenth of Earth's. Pluto is, on the average, about 5,913,000,000 kilometers from the sun. It revolves around the sun once every 248 Earth years, and rotates on its axis once every six and one-half earth days. It has a very elliptical, or egg shaped, orbit. In fact, Pluto's orbit actually crosses Neptune's orbit, making it closer to the sun than Neptune for 20 years out of its 248 year rotation. Pluto's orbit is also tilted; it is not in the same plane as the orbits of all of the other planets.

[3] Photographs taken by the Hubble Space Telescope show that Pluto's surface has large light and dark areas. Pluto's surface is believed to be made up of ice and rock. It probably has some type of thin atmosphere. Pluto has four known moons. The first three are named Charon, Nix, and Hydra. The fourth moon, discovered in July 2011, is simply called P4 right now. It will be given a permanent name later.

[4] Pluto was discovered on February 18, 1930, by Clyde Tombaugh at the Lowell Observatory, which is named after Percival Lowell, who had been searching for a ninth planet since the early 1900s.

[5] Pluto is the only planet never explored by even a fly-by space probe.

[6] **What We Don't Know**: There is a lot that we don't know about Pluto. Since it is so far away, it looks like just a little dot through the best Earth telescopes. Even the Hubble photos only get close enough to show large areas of light and dark over the whole planet. We don't know what Pluto's surface looks like or what it is made of. We don't know much about the make-up of its atmosphere either. No one knows much of anything about the inside, or core, of the planet.

[7] Estimates of Pluto's size keep getting smaller as scientists become more accurate in their measurements, so maybe we still don't really know how big it is either.

[8] There are a lot of things scientists still don't know about Pluto's unusual orbit. For a planet as far away as Pluto, what they do know comes mainly from mathematical calculations. Pluto's orbit never matches the calculations exactly; it always leaves a little mystery for the scientists to ponder.

[9] This is just the beginning of what we don't know about Pluto. Here is the really big thing that we don't know about Pluto; we don't know whether Pluto is really a planet! There are several reasons why some scientists say that Pluto is not really a planet. It is very small for a planet. It has that strange, elliptical, tilted orbit. Its surface of rock and ice reminds scientists of the moons of the outer planets more than of a planet itself. In 2006, it was decided that Pluto is NOT a true planet.

[10] Here are some of their theories about what Pluto really is:

[11]

- Pluto used to be one of Neptune's moons, but it escaped Neptune's gravity.
- Pluto is just one of the many rocky comets that orbit the sun out beyond the planets.

[12] Since this article was first written, the International Astronomical Union (IAU) made some new "planetary rules." According to the new rules, a true planet must do three things. First, it must orbit the Sun. Secondly, it must be big enough for gravity to make it into a round ball. And lastly, it must have cleared out its orbital neighborhood. There can't be any "junk" floating around it.

[13] Pluto follows rules one and two. But it doesn't follow rule three. So in 2006, the IAU decreed that Pluto was not a planet. They decided to call it, for now at least, a dwarf planet.

[14] In 2006, NASA launched a spacecraft to Pluto called *New Horizons*. It will reach Pluto in 2015. Its job is to study Pluto and the Kuiper Belt. Scientists think this mission will give us clues about how the solar system was formed. Maybe then we will begin to know more about the mysterious dwarf planet Pluto.

Name _____ Science Pd _____

Pluto

1. On the average, Pluto is ____ kilometers away from the sun.
   - (A) 5,913,000,000
   - (B) 6 1/2
   - (C) 248
   - (D) 20

2. The Hubble Space Telescope took close-up photographs of Pluto's surface.
   - (A) False
   - (B) True

3. Percival Lowell discovered Pluto.
   - (A) False
   - (B) True

4. Clyde Tombaugh measured Pluto's diameter accurately.
   - (A) False
   - (B) True

5. The statement "Pluto is a planet" is _____.
   - (A) A fact
   - (B) A metaphor
   - (C) No longer thought to be true
   - (D) A theory

6. Which happened second?
   - (A) Percival Lowell searched for a ninth planet.
   - (B) Clyde Tombaugh discovered Pluto.
   - (C) The Hubble Space Telescope photographed Pluto.
   - (D) The *New Horizons* spacecraft blasted off.

7. From this article, you can infer that _____.
   - (A) Scientists don't know as much about Pluto as the other planets.
   - (B) Pluto is the final planet in the solar system.
   - (C) Scientists are not very interested in Pluto.
   - (D) Neptune is really the 9th planet.

8. The main idea of this article is _____.
   - (A) There is a lot that we don't know about Pluto.
   - (B) Pluto is the smallest planet.
   - (C) Pluto is really a comet and not a planet.
   - (D) Clyde Tombaugh should be more famous than he is.