MR. NUSSBAUM
LEARNING + FUN

Oort Cloud Reading Comprehension
Name _____

In the far reaches of the solar system, past Pluto and the Kuiper Belt, lies the Oort Cloud: a spherical bubble of icy bodies that surrounds our solar system. Over a trillion pieces of icy debris comprise this cloud; when nudged out of orbit, some of them can fall towards the sun as comets. Most planets that we know of have a flat, elliptical orbit around our sun. The Oort Cloud, however, has a spherical, shell-like orbit. As of now, we do not think that it can support life.

The Oort Cloud is named after Dutch astronomer Jan Oort, who proposed its existence in order to explain the origin of long-period comets. Most comets that reach our inner solar system are known as short-period comets. The ones that take thousands of years to reach our sun are known as long-period comets, and most of them have only been observed once in their recorded history. Once they approach the sun, gaining an atmosphere called a coma as they do so, these long-period comets take over 200 years to orbit it. Once their orbit carries them farther away from the sun, their atmosphere collapses.

Members of NASA are currently trying to study the Oort Cloud in order to learn more about the particles contained within it and to study long-period comets. NASA launched a spacecraft called Voyager 1 in 1977, aiming to study the outer reaches of our solar system. As of now, Voyager 1 has traveled farther than any other man-made object, and has collected significant data about planets and celestial bodies that are distant from Earth. It will take Voyager 1 at least another 300 years to reach the Oort Cloud, and at least 30,000 years to get to the other side of it. Until NASA is actually able to send a probe to the Oort Cloud and send data back to Earth, we can only study the predictions made in the past and look forward to more clarity on this large spherical bubble in the future.

1. **A comet takes over 4,000 years to reach the sun in our solar system. Which of the following statements is true about this comet?**
   a. It is a short-period comet.
   b. It is a long-period comet.
   c. It will never gain a coma.
   d. It will take less than 200 years to orbit the sun.

2. **Put the following events in chronological order:**
   I. NASA Launches Voyager 1 to study our outer solar system.
   II. The origin of long-period comets is unknown, prompting study of them.
   III. Voyager 1 reaches the Oort Cloud in 300 years.
   IV. Dutch astronomer Jan Oort proposes the existence of the Oort Cloud.
   a. I, II, III, IV
   b. II, IV, I, III
   c. IV, II, I, III
   d. I, III, II, IV

3. **Which of the following best describes the Oort Cloud's orbit?**
    a. A plate: flat and circular
    b. An egg: elliptical and three-dimensional
    c. A hollow basketball: round and spherical
    d. A paint splatter: shapeless and random

4. **Which of the following statements about the Oort Cloud is incorrect?**
    a. We think the Oort Cloud can support life.
    b. It will take Voyager 1 at least 30,000 years to reach the other side of the Cloud.
    c. It was discovered by a Dutch astronomer.
    d. Its existence explains the origin of long-period comets.

5. **We can make predictions about the Oort Cloud's characteristics, but we do not have concrete data from NASA's space probes about it yet. Why is this significant?**
    a. It is not significant; we can make concrete statements about the Oort Cloud without data.
    b. It is not significant; data is important when conducting experiments on earth, but not in space.
    c. Without data, we can only make concrete statements about the Oort Cloud's composition, but not its function.
    d. Without data, our predictions are only hypotheses and cannot become concrete theories about the Oort Cloud.

6. **Which of the following is farthest from Earth?**
    a. Kuiper Belt
    b. Pluto
    c. Oort Cloud
    d. Jupiter

7. **What is a coma?**
    a. A temporary atmosphere created by long-period comets when they orbit the sun
    b. Another name for a long-period comet
    c. A second type of space object discovered by Jan Oort
    d. A protective covering for long-period comets created when they move away from the sun