HYPERION: TARGET 1

I would like to propose that the Cassini space probe visits one of the outer moons of Saturn called Hyperion. It was discovered in 1848 by William Lassel, George and William Bond. It is the largest known odd-shaped object in the Solar System. It was named after a Greek God, Hyperion, which means 'He who watches over'. This strange moon has watched over Saturn for a long time and it would have lots of scientific stories to tell. I would like to present my ideas in three parts: shape, composition and orbit.

Hyperion has only appeared to astronomers as a tiny dot in space, but in 1981 Voyager II was able to send back pictures of Saturn's moons. The pictures showed a strangely-shaped object which was only approximately 168 miles in diameter and in shape, similar to a potato. It is thought by scientists that Hyperion was probably once a much larger moon that was struck by a meteor which almost completely destroyed it. As there is so little left of Hyperion, I think it would be important for scientists to discover as much as they could before another space collision removed it from our Solar System.

Research shows that Hyperion is not very dense which suggests that it is made of ice and pockets of trapped gases with only a small amount of rock. Scientists think that this makes the surface of Hyperion easier to crater. Close-up pictures show massive craters probably due to its position on the edge of Saturn's rings which is more liable to space collisions. Hyperion's craters are extremely large and deep for such a small moon. The largest crater is about 80 miles across and 6 miles deep. The craters make the surface look like a wasp nest or a sponge. As it is so far away from Saturn, the craters have not been worn down by 'tidal warming' caused by gravity. The craters have bright sides which show that there is water in the form of ice. Dark material fills the bottom of each crater and they are red in colour. This red material contains carbon and hydrogen atoms and gives Hyperion a low albedo which means that it does not reflect light very well. Investigation of the craters would produce more information about the composition of Hyperion and the processes that created the surface.

Hyperion orbits at about 920,000 miles from Saturn. The pictures from Voyager II showed that it has a strange rotation and orbit around Saturn; it appears to wobble so much that its path is unpredictable. This could be due to the closeness of a much larger moon, Titan and its great distance from Saturn. Titan has a stronger gravitational pull on Hyperion and this means that it is not 'tidally locked'. It is the only moon in the Solar System to have such an unusual rotation.

I believe that further investigation on Hyperion is important because it is a unique object in our Solar System.