**Light Propelled Spacecraft**

Is it feasible to propel a spacecraft with light? What are the constraints and limits of light propulsion? In what situations (if any) does it seem a good idea?

The Swiss psychologist Jean Piaget said that when we teach a student something, we prevent the student from “inventing it”. Let yourselves invent some ideas before you go online. Start off by brainstorming some or all of these in a group. Feel free to consider other factors as well.

One thing you probably need to know is what kinds of masses spacecraft have. This table might save you some trouble.

|  |  |  |
| --- | --- | --- |
| **Probe** | **Mass (kg)** | **Notes** |
| Cubesat | 1.3 | Mass of one unit; multiple units can be linked together |
| Yinghuo-1 | 115 | First Chinese interplanetary mission; launched in 2011 but failed to leave Earth orbit due to problem with the Russian rocket carrying it |
| Pioneer 10 | 260 | Mission to Jupiter launched by US in 1972 |
| COS-B | 280 | European Space Agency mission to measure high-energy gamma radiation; launched in 1975 |
| Luna 2 | 390 | First mission to land on the moon; launched by the Soviet Union in 1959 |
| New Horizons | 478 | First mission to fly by Pluto; launched by US in 2006 |
| Voyager 1 | 923 | First mission to leave solar system; launched by US in 1977 |
| Apollo 11 | 28,801 | First mission to land humans on moon; launched by US in 1969 |
| Space Shuttle | 2.00 x 106 | First reusable spacecraft, first launched by US in 1981 |