

Name: _____ Date: _____ Class: _____

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	2.00×10^6	First reusable spacecraft, first launched by US in 1981