Let's PLANET Out

Pivotal Breakthroughs for Interplanetary Colonization

Innovations

1. Nuclear Electrical Propulsion
- -faster, more efficient forms of travel
- -reusable, constant source of energy

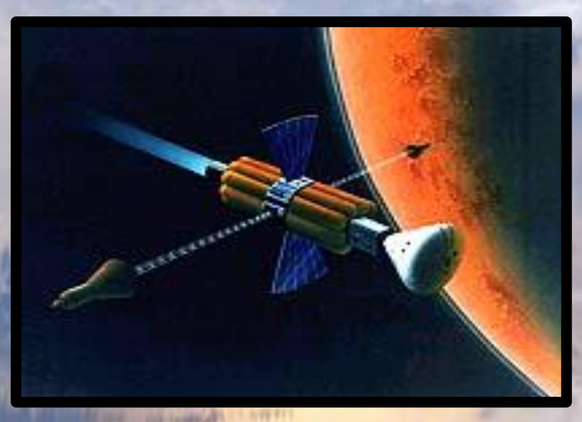
2. Laser Communications
- -can allow for 10 to 100 times faster communication
- -uses less mass and power, reaches farther distances

3. Genetically-Modified Organisms
- -allows plants and microbes to survive and function in a new environment

4. Asteroid Mining Robots
- -can provide metal, water, and fuel for rockets and colonies
- -robots could function in multiple ways

Growing Plants in Space

Example of Asteroid Mining Robot



Rocket Utilizing Nuclear Electrical Propulsion

Example of Laser Communications

Year 1	Year 2	Year 3	Year 5
Begin Fundraising And Robot Testing	Reach Fundraising Goal	Finalize and Launch Robots	Establish stable resources for colonizing	Fully Functioning to supply colony

Developmental Plan - Asteroid Mining Robots

- **Estimated Cost**: 2.3 billion USD
- **Estimated Time Span**: 2 years to build/test robots
  Another 3 years to execute plan
- **Fundraising**: International Space Program funding, participant donation, multi-country joint effort, Planetary Resources Inc.

Technical Difficulties:
- Re-Inspection and maintenance checks of instruments
- Robots must be able to withstand conditions of outer space
- **Future Applications**: Terraforming, Preparation of Human Habitats, Maintenance

California
Level: 11/12
Team 3