

# WHY SPACE? Why Should We Explore and Develop Space - Why is it Important?

This document provides a short, comprehensive, organized **checklist** of all the reasons that people have thought of so far. These items are **not** necessarily listed in the order of importance. Also, note some degree of *overlap*. The first version of this list was created in 1990 to provide background for a university debate event. Send potential new categories to John Strickland at [jkstrickl@sbcglobal.net](mailto:jkstrickl@sbcglobal.net).

## (I) Short Term Economic Reasons

1. **Applied Science** (practical application of knowledge and skills for industry).
2. Technological **Spin-offs**: (computer chips, medical monitors, etc.).
3. Current **Short-term** Benefits: ex: - generating high-tech aerospace jobs.

## (II) Long Term and Sustainable Economic Reasons

4. **Space Development**: Use of space sites, materials & energy for Earth and Mankind's benefit, Expansion of human **economic** activity into the Solar System. These include:
  - A. Use of **positions in space** such as Geosynchronous Orbit, L2, etc., for communication, imaging, remote sensing, etc.
  - B. Use of non-terrestrial **materials** and **resources** like moon rocks and asteroids as inputs for manufacture of oxygen, water, rocket fuels, processed metals, and other useful products.
  - C. Use of **solar** and gravitational **energy** in space for use in space and on the earth and moon.
  - D. Construction of **infrastructure** in space (logistics bases, fuel depots, crew refuges, etc.). (*overlaps* with 4H)
  - E. Use of **conditions** in the space environment (micro-gravity, hard vacuum) by industry or science.
  - F. **Economic Stimulation** created by a new frontier beyond the direct control of old bureaucracies & governments.
  - G. Getting **Industry off the Earth**: mines, smelters, and factories, for profit and to reduce the impact on the Earth.
  - H. Use of **positions** in space such as LEO, L2, etc. for efficient transport and transport hubs. (*overlaps* with 4D).
  - I. Cost reduction via in-space **servicing and repair** of existing facilities and infrastructure with or without crew.
  - J. **Cost reduction** for existing traffic demands by improvements in space transportation (secondary reason).
  - K. Removal of orbital **space debris** –increase **safety** for equipment and people.

## (III) Currently Non-Economic & Indirectly or Partly Economic Reasons

5. Basic **Human Drive to Explore** (vicarious or direct), (*Overlaps* with Adventure and Tourism).
6. **Adventure** (*Overlaps* with Exploration and Tourism).
7. Acquisition of **Fundamental Knowledge** - basic (pure) science. This will eventually become economically valuable.
8. **Settlement, Personal Emigration, Colonization and Survival** in space or on planets:
  - A. **End the "all our eggs in one basket" situation** (all of the human race on just 1 planet), by creating a “**backup copy**” of the human race and human civilization, history, art and knowledge. (Remember, the backup copy always needs to be in a different place than the primary copy! )
  - B. **Expansion** of the human species off the planet, with growth into new habitats. (*overlaps* with 8A).
  - C. Greater **diversity** (type & number) of **places** for people to live.
  - D. Increase **Social & Political diversity** & create refuges for minority groups, & Emigration – personal reasons.
  - E. Eventual creation of a **free space-faring civilization** (first - in the solar system, then - among the stars!).
9. **Biological and Safety Reasons**:
  - A. **Genome repository** and backup for all Earth Species in living, frozen, or digital storage. (*overlaps* with 8A).
  - B. **Spread the biosphere** beyond the Earth, to Mars, etc. (with terraforming).
  - C. **Protect Earth's environment** from Global Warming and Asteroid Impacts by space development.
  - D. Provide **safe off-Earth locations to test nanotechnology** and other potentially hazardous biological tools.
  - E. Increase **biological diversity** as organisms adapt and evolve to survive on other planets.
10. **Cultural Reasons** (Arts) Enrichment, Entertainment and Diversity:
  - A. **New types of entertainment** & cultural activities (art, ballet, etc.).
  - B. New zero gravity or low gravity **sports** (participate or watch).
  - C. Space **tourism**, the new experiences of space travel. (*Overlaps* with Adventure and Economics).
11. Improvement in **Quality of Life** for people on Earth. (*Overlaps* with Space Development).
12. Stimulate **Science Education**, interest and enrollment in science and engineering curricula in grade school, high school and college, (inspiration by doing inspiring things. (This will also have an indirect economic benefit).
13. Encourage **International Cooperation** and/or replace warfare.
14. National Technical **Prestige** (can have an indirect economic benefit from a positive “brain drain”).
15. Personal Quest for **Fame** and the virtual “immortality” derived from the fame.
16. **Military** and National Security Reasons.