
RESEARCH TASKS

1. I understand the risks and benefits associated with space exploration including challenges of re-entry to a planet's atmosphere.
2. I can give evidence to support our current understanding of the universe from telescopes and space exploration.
3. I can give the benefits of satellite, for example GPS, weather forecasting, communications and space explorations (Hubble Telescope and ISS)
4. I can qualitatively explain that the greater the altitude (height) of a satellite the longer the period of its orbit.
5. I understand the potential benefits of space exploration including associated technologies and the impact on everyday life.
6. I can describe the risks and benefits associated with space exploration, including challenges of re-entry to a planet's atmosphere, travelling large distances with the possible solution of attaining high velocity by using ion drive (producing a small unbalanced force over an extended period of time) or using a catapult from a fast moving asteroid, moon or planet
7. I can explain the manoeuvring of a spacecraft in zero friction environment, possibility of docking with the ISS
8. I can explain the difficulties of maintaining sufficient energy to operate life support systems in a spacecraft with the possible solution of using solar cells with area that varies with distance from the sun,
9. I understand the risks associated with manned space exploration, for example fuel load on take-off, potential exposure to radiation, pressure differential, and challenges of re-entry to a planet's atmosphere.
10. I can use the appropriate relationship to solve problems involving heat energy, mass and specific latent heat. ($E_H = ml$)
11. I can use the term 'light year' and convert between light years and metres.
12. I can give a description, origin and age of the observable universe.
13. I can describe how different parts of the electromagnetic spectrum are used to obtain information about astronomical objects.
14. I can identify continuous and line spectra.
15. I can use spectral data for known elements, to identify the elements present in stars.
16. I can explain the use of thermal protection systems to protect spacecraft on re-entry.
17. I understand the risks associated with manned space exploration, for example fuel load on take-off.
18. I understand the risks associated with manned space exploration, for example potential exposure to radiation,
19. I understand the risks associated with manned space exploration, for example pressure differential.
20. I can describe the risks and benefits associated with space exploration, including travelling large distances with the possible solution of attaining high velocity by using ion drive (producing a small unbalanced force over an extended period of time)
21. I can describe the risks and benefits associated with space exploration, including using a catapult from a fast moving asteroid, moon or planet

<http://listverse.com/2014/03/17/10-horrific-disasters-of-the-space-program/>

<https://spinoff.nasa.gov/spinoff/database/>