

Accommodations for Space **KEY**

Obstacle to Space Travel	Effects on Humans and Accommodations
<p>Group A: Leaving Earth: overcoming gravity, slingshot effect, orbiting distances between objects in the solar system, etc.</p>	<p>Effects/Accommodations-</p> <p>Living in space is not as easy as it looks in the movies or on TV. Think about what you learned in the last lesson about how different the temperatures and atmospheres were on other celestial bodies. The distance from the Sun affects how much solar radiation arrives at that planet or object. Too much solar radiation can kill humans if they do not have protection from the radiation.</p>
<p>Group B: Effects of Microgravity on the Body: being weightless, physical effects, long-term effects on muscles and bones, etc.</p>	<p>Effects/Accommodations-</p> <p>Space travel causes an almost weightless effect on humans called microgravity. You may have experienced microgravity by riding roller coasters, jumping on a trampoline, or diving off a diving board. It is during the "free fall" period when the microgravity occurs and only lasts for a short period of time. It is sometimes called zero gravity, but is more appropriately named microgravity because it is so small. The shuttle is held in orbit by gravity as it is being pulled toward the Earth. Since weight is measured by the pull of gravity on a mass and mass is the amount of matter in a substance, astronauts lose weight due to less gravity. They will also lose some muscle mass because they do not need to use them due to the lesser amount of gravity in space. If muscles are not used, they will lose mass.</p>

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<p>Group C: Pressure, Temperature, and Atmosphere Changes: suits that provide air supply, temperature, pressure, and radiation protection, maneuverability, etc.</p>	<p>Effects/Accommodations-</p> <p>Providing clean air supply, water supply, temperature control, and a way to dispose of waste must also be considered. Living in space is challenging!</p>
<p>Group D: Space Food: challenges in preparing and eating, taste, etc.</p>	<p>Effects/Accommodations-</p> <p>Microgravity will also cause water to form a ball rather than a water drop shape or any other shape water can take. This can cause problems showering, perspiring, and drinking. Food is prepared differently and may taste different. Astronauts often request hot sauce and spice to improve the flavor of their food.</p>

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<p>Group E: Waste Management: toilet, showers, garbage disposal, etc.</p>	<p>Effects/Accommodations-</p> <p>Human waste management in space is quite fascinating. The toilets flush with air instead of water. The airflow pulls the waste away from the body, and then flushes it into the storage tanks. Liquid waste will eventually evaporate once it's dumped overboard. Solid waste is deposited into a container, dried out, and then taken back to earth for disposal.</p>
<p>Group F: Living and Working in Space: sleeping, health, crowded conditions, etc.</p>	<p>Effects/Accommodations-</p> <p>Space is huge and the distances between objects are very great. It is generally cold and dark. Human sense to time and speed are not accurate. Living in a small crowded area can lead to depression.</p>

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<p>Group G: Spacecraft: providing living, sleeping, hygiene, working areas, etc.</p>	<p>Effects/Accommodations-</p> <p>Sleeping is challenging in microgravity. Sleeping bags are strapped to the walls, and astronauts must secure themselves within them. The rhythmic beating of the heart will cause the head to bob, so the head must be restrained.</p>