

Answer Key



Measure of Mission Readiness

Astronauts go through rigorous training to be qualified for an expedition. One thing they must understand before a mission is the dangers they might encounter and how to avoid danger.

Mission Operations

Station Electronics and Power Components

Circle the 6 the most important things an astronaut needs to know about in order to avoid a **power or electrical system emergency**. Please circle no more or no less than 6.

- Watts
- Batteries
- Electrons
- Iron filings
- Ohm's law
- Transformers
- Radio signals
- All about fuses
- Photovoltaic cells
- Resistance in a circuit
- Latitude and longitude
- What wires are made of
- Lightning from the atmosphere
- How to navigate using the stars
- The chemical reactions that start fires
- Components which consume electricity
- How to generate electricity from the earth's atmosphere
- How much electricity a human being consumes in one day

Life Support

Station environmental controls: Oxygen generation, Air contaminant removal

Circle the 6 the most important things an astronaut needs to know about in order to avoid a **life support emergency**. Please circle no more or no less than 6.

- Odor
- Hypoxia
- Boyle's Law
- Station altitude
- Photovoltaic cells
- Manual air pumps
- Radioactive particles
- Carbon dioxide removal
- Gravitational acceleration
- Millimeters of hemoglobin
- Atmospheric removal units
- Excessive methane production
- Standard temperature and pressure
- Extra vehicular activities (EVAs)
- Partial pressure of atmospheric components
- Oxygen and carbon dioxide exchange in the lungs
- How to generate oxygen from the earth's atmosphere
- How much pressure a human being consumes in one day
- Components which regulate atmospheric composition

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Radiation Health

Protecting the health of astronauts from radiation

Circle the 6 the most important things an astronaut needs to know about in order to avoid a **radiation health emergency**.

Please circle no more or no less than 6.

- Magnetism
- Dose limits
- Marie Curie
- Rad and rem
- DNA mutations
- Partial pressure
- Ionizing radiation
- Shielding principles
- Solar particle events
- Radiation fall-out shelters
- Gravitational acceleration
- How nuclear fusion works
- Proper use of microwave tools in space
- Production of X-Rays from the Earth's core
- Radioactive components in soil found on the moon
- Radioactive components in soil found on the Earth
- How to remove radiation from the Earth's atmosphere
- Components which regulate radiation production on the station

Space Weather

Monitoring space weather conditions

Circle the 6 the most important things an astronaut needs to know about in order to avoid a **space weather-related emergency**.

Please circle no more or no less than 6.

- Solar flares
- Infrared filters
- Lead shielding
- Solar shielding
- Van Allen belts
- Photovoltaic effect
- Solar prominences
- Solar particle events
- Galactic cosmic rays
- Radioactive particles
- The earth's lithosphere
- Coronal mass ejections
- Electromagnetic waves
- Solar photon production
- The earth's magnetosphere
- How to navigate using the stars
- High frequency radio transmissions
- How carbon becomes space plasma
- Space weather prediction instruments on the space station