SCINNOVA VIII

REDSHIFT

STUDY GUIDE

Buckle up, space cadets, because Redshift this year is taking you on a spectacular voyage through the cosmos! Dive into the mysteries of the universe, exploring its deepest and darkest corners on an astronomical adventure you'll never forget.
Your vade mecum for this stellar journey is the study guide below, packed with all the knowledge you'll need to conquer the rounds of this epic module. So, suit up, set your course, and prepare to uncover the wonders of the universe like never before!

Round 1:

Step into the fascinating realm of rocket science and space exploration, where the synergy of physics and engineering unveils the mysteries of the cosmos. This module challenges you to explore the core principles behind launching and navigating spacecrafts, introducing the scientific foundations that drive aerospace innovation. Through this immersive challenge, you'll apply your knowledge of physics and engineering while honing your problem-solving skills in a dynamic, hands-on environment.
The content we expect you to know:

1. Newton's laws of motion.
2. Forces acting on rockets, such as thrust, drag, etc.
3. Importance of center of mass in ensuring flight stability.
4. Basics of aerodynamics and how they influence rocket performance.
5. The role of launch angles in determining flight trajectories.

Round 2:

Prepare for an extraordinary test as you venture into the vast expanse of the planets in our solar system, where participants will face the ultimate challenge of orchestrating a daring rescue mission. Navigate through the complexities of planetary alignment, unravel the secrets of planetary terrains, and overcome the perilous trials of space weather and cosmic obstacles. Will humanity's ingenuity prevail in the race against time to bring a stranded astronaut back to safety? The mysteries of survival and interplanetary rescue await!

The content we expect you to know:

1. The basics of interplanetary travel, including orbital cycles, trajectory planning, and synchronization of rescue systems.
2. The topography and surface environment of the planets in our solar system, including their weather patterns and climate.

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