



REDSHIFT



STUDY GUIDE



Buckle up, space cadets, because Redshift this year is taking you on a mind-blowing voyage through the cosmos! Get ready to unravel the mysteries hidden in the deepest, darkest corners of space on an astronomical adventure you'll never forget.

Your trusty guide for this interstellar journey is the study guide below, packed with all the knowledge you need to navigate the different rounds of this epic module. So, grab your spacesuit, chart your course, and prepare to boldly go where no one has gone before!

Round 1:

Get ready to step into a challenge where observation, logic, and adaptability matter more than prior preparation. This module is designed to test how well you can work with incomplete information, make sense of unfamiliar data, and respond to sudden changes in your environment. Expect moments of uncertainty, shifting conditions, and tasks that may not reveal their purpose immediately.

• Round 1 will be unlike anything you have encountered before — arrive adaptable and alert.

The content we expect you to know:

● **Interpreting Visual Information**

- Comparing observed data against reference material
- Drawing conclusions from simplified representations

● **Working with Graphs and Scales**

- Understanding axes, units, and trends
- Plotting points and reading values from charts
- Estimating quantities when exact values are not obvious

● **General Physical Concepts**

- Familiarity with ideas like force, energy, motion, and balance
- Understanding that physical systems respond predictably to changes

● **Stellar and Planetary Bodies**

- Types of stars and their properties
- Types of planets and their properties
- How gravity affects heavenly bodies by the curvature of space-time
- Nuclear fusion in stars and life cycle of a star

Round 2:

Prepare for an extraordinary challenge that pushes the boundaries of human perception. Participants will work with light itself, shaping and guiding it through carefully chosen elements to reveal what lies beyond ordinary sight. By balancing precision, alignment, and design, uncover how distant realities can be drawn closer, one calculated adjustment at a time.



The content we expect you to know:

- How light behaves when passing between different transparent media
- Basic geometric reasoning involving rays, angles, and intersections
- Interpreting simple diagrams related to paths and convergence
- Proportional reasoning and elementary algebra
- Careful measurement, alignment, and iterative refinement
- Convex and Concave Lenses