INTERNATIONAL SPACE OLYMPIAD

SYLLABUS 2023

PRELIMINARY LEVEL

Our Universe

1. **STELLAR PHYSICS**
   - Star formation
   - Nuclear reactions inside stars
   - Life cycle of stars
   - Stellar classification
   - Different types of stars
   - HR diagram

2. **STELLAR EVOLUTION**
   - Main sequence stars
   - Heavy mass stars
   - Black holes and neutron stars
   - Chandrashekhar limit
   - Gravitational waves

3. **PLANETS AND GALAXIES**
   - Solar system
   - Moons, Sun
   - Gas Giants
   - Types of Galaxies
   - Dark Matter

INTERMEDIATE LEVEL

Space Technologies and Astronomy

1. **OBSERVATORIES ACROSS THE GLOBE**
    - Biggest and first ever Observatories
    - Radio Observatories
    - Gravitational wave observatories

2. **DIFFERENT TYPES OF TELESCOPES**
    - Earth based (Optical, Radio, etc)
    - Space based (Hubble etc)
    - Satellites for space observations
    - Major discoveries using Telescopes
    - CMBR observation

3. **MAJOR SATELLITES AND ITS USES**
    - Communication
    - Weather
    - GPS
    - Major satellites
    - First ever Satellites

FINAL LEVEL

Space Agencies and People

1. **MAJOR SPACE AGENCIES**
    - NASA (Origin and history, Astronauts, etc)
    - ISRO (Origin and history, Astronauts, etc)
    - JAXA (Origin and history, Astronauts, etc)
    - ESA (Origin and history, Astronauts, etc)

2. ROCKETS USED AND ITS WORKING

- Saturn Series
- SLV Indian rockets
- PSLV and GSLV
- GSLV mark III
- Fuels used in rockets
- Materials used to build
- Rockets used for Apollo Missions

3. SPACE MISSIONS

- Apollo Missions
- Crewed and uncrewed missions
- Mission to Pluto, Jupiter, Mars and Saturn
- Major missions to study Sun
- Major failures in the history

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