



*Astronomy GCSE*  
Curriculum



# *Edexcel GCSE 1ASO*

## Introduction

This document outlines the curriculum for the GCSE Astronomy (Edexcel board) course offered by LWSF. The course is designed to ignite students' curiosity about the universe, foster a deep understanding of astronomical concepts, develop observational and analytical skills, and encourage a lifelong passion for space exploration.

### *Aims*

The primary objectives of this course are to:

- Develop students' knowledge and understanding of astronomical objects and phenomena.
- Enhance students' observational and data analysis skills using astronomical equipment and software.
- Foster critical thinking and problem-solving abilities in the context of astronomical investigations.
- Encourage students to communicate their understanding through written reports, presentations, and discussions.
- Prepare students for the Edexcel GCSE Astronomy examination.

### *What The Student Will Learn*

#### *Topics*

##### **Celestial Objects and Phenomena**

Students will learn about:

##### **The Solar System:**

- The Sun, planets (including Earth), moons, asteroids, comets, and meteoroids.
- Planetary motion, gravity, and tides.
- Space exploration missions and their significance.
- Formation and planetary systems
- Early models of the Solar System



### **Stars and Galaxies:**

- Stellar evolution, including star formation, life cycle, and death.
- Types of stars (main sequence, giants, supergiants, white dwarfs, neutron stars, black holes).
- Galaxies: types, structure, and distribution in the universe.
- The Milky Way galaxy and its place in the universe.

### **Cosmology:**

- The Big Bang theory and the origin and evolution of the universe.
- CMB, the expanding universe, dark matter, and dark energy.
- The future of the universe.

### **Observational Astronomy**

Students will develop practical skills in:

- **Using astronomical equipment:** Telescopes (refracting and reflecting), binoculars, star charts, and planispheres.
- **Observing celestial objects:** Planets, stars, constellations, the Moon, and other deep-sky objects, using known coordinate systems
- **Collecting and recording astronomical data:** Taking measurements, making observations, and recording findings.
- **Processing and analysing astronomical data:** Using software and spreadsheets to analyse data and draw conclusions.

### **Data Analysis and Interpretation**

Students will learn to:

- Analyse astronomical data using graphs, charts, and tables.
- Interpret astronomical images and spectra.
- Identify patterns and trends in astronomical data.
- Draw conclusions and make inferences based on astronomical evidence.
- Evaluate the reliability and validity of astronomical data.

### **Communication and Presentation**

Students will develop their communication skills by:

- Writing reports and essays on astronomical topics.
- Preparing and delivering presentations on astronomical findings.
- Participating in class discussions and debates.
- Communicating astronomical information to a wider audience.



## *Research and Investigation*

**Students will conduct independent research projects on:**

- Current astronomical research and discoveries.
- Careers in astronomy and related fields.
- The impact of astronomy on society and culture.

## *Assessment*

Students will be assessed through a combination of:

- Practical examinations: Observing celestial objects, using astronomical equipment, and collecting data.
- Written examinations: Covering theoretical knowledge and data analysis.
- Project work: Independent research and presentations.
- Class participation and contributions: Engagement in discussions and group work.

## *Additional Resources and Support*

LWSF will provide students with a variety of resources and support to help them succeed. Students will have access to:

- Access to telescopes and other astronomical equipment.
- Astronomy books, journals, and online resources.
- Planetarium software and astronomical databases.

## *Additional Learning Opportunities*

Students are encouraged to participate in community activities such as:

- Astronomy club
- Stargazing events
- Visits to observatories and planetariums



## *Evaluation and Review*

The curriculum will be reviewed annually to ensure its effectiveness and alignment with the boards' defined curriculum. Feedback from students, teachers, and parents will be considered in the review process.

Updated August 2024

Next review: August 2025