



# SCIENCE DEPARTMENT

## Our Mission

*As a faculty, our mission is to:*

Instill a love of Science and learning in our students within a positive, safe environment.

*The Science faculty strives to inspire and facilitate in our students, the development of:*

Cooperation and respect for learning

Observation skills

Curiosity

Scepticism and objectivity

Investigation skills (theoretical and practical research)

An understanding and ability to explain the world around them

*So that our students:*

Achieve their academic potential

Can make informed decisions

Become independent learners with a lifelong thirst for knowledge

Are equipped to cope with the rapidly changing world

## Courses

In Years 7 to 9 students engage in a range of units of work covering all scientific disciplines, including Physics, Chemistry, Biology, Geology and Astronomy. Students participate in a range of experiences, including problem solving, designing and undertaking practical experiments, modeling, first hand investigations, research tasks and oral and group presentations.

In Year 10, students rotate through the three major scientific disciplines, Biology, Chemistry and Physics. This provides them with an insight into what each of these subjects will be like in Year 11 and 12, thus enabling them to make informed decisions about pursuing these fields of study for their Higher School Certificate.

In Year 11 and 12, students have a choice of three HSC subjects, Biology, Chemistry and Physics. Biology seeks to explain the metabolism of life and the interactions of organisms with each other and the environment. Chemistry deals with the study of the composition of materials at an atomic level and their relevance to everyday life. Physics deals with energy, motion and the forces in our universe and how these impact on our daily lives.



*"Science is an imaginative  
adventure of the mind seeking truth  
in a world of mystery".*

*Sir Cyril Herman Hinshelwood  
(1897– 1967) English Chemist.  
Nobel Prize 1956*

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# SCIENCE DEPARTMENT (CONTINUED)

## Excursions and Competitions

A number of excursions enhance the teaching and learning of Science at Masada College. These excursions allow content learnt in the classroom to be seen and experienced in a real world context.

- Year 7 Taronga Zoo Excursion to study classification and animal diversity
- Year 8 Excursion to the Powerhouse Museum to study energy and machines
- Year 11 Biology Excursion to the mangroves to complete fieldwork in ecology
- Year 12 Physics Excursion to the University of Sydney Kickstart Program

There are incidental incursions through our involvement with the CSIRO Scientists in Schools program in which Scientists will visit and work with students in various areas of interest and content. Year 9 and 10 participate in The Science and Engineering Challenge Competition which is a full day activity based competition undertaken by teams.



## Science Evening

In Years 8 and 10 all students undertake a major assessment task in the form of an independent Student Research Project, where students identify a problem, plan a procedure to investigate the problem and then carry out an experiment and report on their findings. Our **Science Evening** allows students to present their research to their peers, parents and a panel of visiting scientists. We also display posters of every students' work.

## Culture of Thinking

We have incorporated thinking routines into our programs at all year levels, in line with the **Culture of Thinking**. These challenging activities are ideally suited to the study of Science. They engage students and allow them to think critically to solve problems, link ideas and concepts, apply their existing knowledge, justify their decisions and understand how their thinking processes develop.

## Our Laboratories

There are three laboratories used by the Masada College Science Department. Each of these is equipped with a comprehensive set of standard laboratory equipment and specialist models and apparatus for demonstrations and student experiments. We have a set of 10 dataloggers that connect to laptop computers for students to use in small groups. They include a variety of sensors and probes to allow for electronic data collection in Physics, Chemistry and Biology. Each Laboratory is also equipped with a data projector which connects to a computer allowing teachers to make use of internet sites PowerPoint presentations or short videos in their lessons. This also allows experimental data to be displayed in spreadsheets so that whole class sets of data can be processed.



## Assessment

All assessment weightings adhere to the Board of Studies guidelines. In each Year (7-12) students complete a range of assessment tasks including examinations, research assignments, oral and group presentations, practical investigations and first-hand investigations.

Apart from the formal assessment tasks, each teacher also conducts their own assessments for the purpose of reporting on and monitoring each student's progress and developing skills.

