IONA
PRESENTATION COLLEGE

2017
Science

LEARNING AREA SUMMARY

Understanding the basic principles of our Physical and Biological world is both an important and interesting aspect of any student's learning. In Science, students will be taught relevant and current information that results in the knowledge of the world they live in and an understanding of the principles of Science Investigations.

Science classes involve a balance of learning core concepts and applying scientific skills to practical investigations. With an ever-evolving understanding of our world and a parallel evolution of technology, review of current literature is critical in keeping up with the Science world. As part of our coursework in both lower and upper school, we now incorporate article analysis techniques and use texts in a digital format to gain updated information as it unfolds.

In keeping with the Australian Curriculum, Iona Presentation College organises Science Content under the three headings; Science Understanding, Science as a Human Endeavour and Science Inquiry Skills.

1. Science Understanding; students are taught facts, concepts, principles and laws of Science. They are then able to transfer this knowledge to real life situations. There are four sub-strands of content – Biological Science, Chemical Science, Earth and Space Science and Physical Science.
2. Science as a Human Endeavour; students learn of the events, developments and influential people in science.
3. Science Inquiry; students learn how to plan and conduct their own research and communicate their findings.

YEAR GROUP AND TERM ACTIVITES/ TOPICS

YEAR 7

- Investigating Scientifically
- Classifications and interactions of organisms
- Mixtures, solutions and separations
- Seasons, eclipses and tides
- Forces and Machines
- Renewable and non-renewable resources

YEAR 8

- Cells, organs and systems
- States of matter
- Elements, compounds and mixtures
- The rock cycle
- Potential and Kinetic energy

YEAR 9

- Ecosystems and communities
- Structure of atoms
- Chemical reactions
- Plate tectonics
- Energy transfer through various medium

YEAR 10- Advanced/ Intermediate

- Genetics , inheritance and natural selection
- Atomic /Mass number and the periodic table
- Chemical reactions, mole-mass calculations
- Energy transformations
- Motion predictions and calculations

YEAR 10- Standard/ General

- Genetics , inheritance and natural selection
- Forensic Science
- Solutions and solubility
- Structures

YEAR 11

In Year 11, students may choose from the following courses:

ATAR Chemistry

Includes the topics of:

- Bonding, Calculations, Energy Changes in Reactions and Reaction Rates

ATAR Physics

Includes the topics of:

- Nuclear Physics, Electricity, Heat, Forces and Motion

ATAR Biology

Includes the topics of:

- Ecosystems, Classification, Reproduction and Genetics

ATAR Human Biology

Includes the topics of:

- Cells, Metabolism, Body Systems, Reproduction, Genetics

General - Integrated Science

There are no examinations in this course.

The topics of Semester 1 and 2 are:

- 'Environmental Degradation' and 'Kinesiology and Well Being'

YEAR 12

In Year 12, students may choose from the following courses:

ATAR Chemistry

- Bonding and equilibrium
- Solutions
- Acids and bases
- Redox organic chemistry

ATAR Physics

Includes the topics of:

- Motion and Forces
- Electricity and Magnetism
- Particles, waves and quanta
- Motion and forces in electric and magnetic fields

ATAR Biological Science

Includes the topics of:

- Cells and homeostasis
- Ecosystems and Environmental change
- Natural selection and Evolution
- Biotechnology

ATAR Human Biological Science

Includes the topics of :

- Nervous and Endocrine systems
- Homeostasis
- Biomedical Science
- Human Evolution – current theories

General Integrated Science

Includes the topics of:

- Forensics
- Marine studies and Aquaculture

EXTRA INFORMATION

The Science Learning Area encourages student participation in many extra curricula opportunities throughout the year. Students are selected for various events and competitions, depending on their ability and interests.

HYPERSCIENCE YEAR 9 AND 10

This is an optional subject for which students are pre-selected based on their Year 8 and 9 performance. Students use investigative frameworks to study areas of interest and are introduced to the more complicated aspects of Science including Astrophotography and Engineering.

The National Youth Science Forum takes place each summer holidays in Canberra. Year 11 students are nominated each year from Iona Presentation College. To date we have been very successful in our applications.

Students from years 7, 8 and 9 take part in the Big Science Competition each year. This is an opportunity for students with an all-round Science ability to shine.

Advanced Year 10 and Chemistry Year 11 and 12 students take part in the Chemistry Competition each year, a competition that allows Nation wide recognition of achievement in Chemistry.

CAREERS IN SCIENCE

Studying Science can lead to many interesting, challenging and rewarding career opportunities.Science industry showing areas of growth in Western Australia are;

Environmental Science - the need for each household, community and company to be accountable for sustainable practices. There is a growing need for experts in this field.

Mining - The mining boom continues to provide many challenging and rewarding career opportunities. Particularly in the Engineering field.

Astronomy – The WA portion of the Square Kilometre Array Project will bring to Western Australia not only the need for Astrophysicists, but employment of a workforce to cope with the huge amount of data produced.

Biomedical Science – New medical techniques including epigenetics, stem cells and recombinant DNA techniques make this era of medicine one of the fastest to evolve in our history.