



## ELECTIVES: YEAR 10 2017

### **SCIENCE ELECTIVES**

#### **GENERAL SCIENCE A**

In General Science A you will study Chemistry and Physics, exploring the science behind how materials are made and the safety features in cars. In Chemistry, you will learn about how the periodic table can be used to explain and predict the properties of elements and how these elements form compounds. You will also investigate how chemical reactions can be used to produce materials and the factors that influence the rate of reactions. In Physics, you will carry out a number of experiments investigating Newton's Laws, linking your findings with how to make cars safer. You will also examine the effect of using a mobile phone while driving on braking distance.

In addition to the content and skills listed above, you will further develop the practical investigation skills that are required in VCE Biology and Psychology.

#### **GENERAL SCIENCE B**

In General Science B you will study Biology and Earth and Space Sciences, exploring the science behind inheritance of traits, the beginnings of the Universe, evolution by natural selection and Earth's climate. In Biology, you will learn about how DNA and genes are integral to the transfer of genetic information, further exploring these ideas by researching a specific genetic disease. You will also study how biodiversity can be explained using the theory of natural selection, investigating a simulation activity to see the effect of environmental changes on the distribution of species. In Earth and Space Sciences, you study stars, galaxies, the Big Bang Theory and the different layers of Earth's atmosphere. In this part of the course, you will design a lesson where you will teach Year 3 students about the ideas that you have learnt in class.

In addition to the content and skills listed above, you will further develop the research skills that are required in VCE Chemistry.

#### **SCIENCE A**

In Science A you will study Chemistry and Physics, exploring the science behind the production of useful products and the motion of objects. In Chemistry, you will consolidate your understanding of the conservation of mass, atomic theory, the periodic table and investigate how the properties of elements can be predicted using the periodic table. You will use your understanding of these foundational ideas to explain how elements can form chemical compounds and learn how to write chemical formulas and chemical equations. You will then investigate how to increase the rate of reactions by investigating a number of different chemical reactions. In Physics, you will explore the ideas behind motion including speed, velocity and acceleration. You will investigate how Newton's Laws are integral to helping us understand how cars move and why car collisions result in extensive damage. You will further your understanding in this topic by undertaking a practical investigation into the factors that influence motion. A number of experiments will be undertaken to help build your understanding of the three types of energy related to motion. The mathematical calculations required for the determination of velocity, acceleration and distance will be introduced and consolidated in a range of activities.

The content covered in this subject is important preparation for VCE Chemistry, Physics and Biology. In addition to this, you will further develop the practical investigation skills that are required in VCE Chemistry, Physics, Biology and Psychology.

## **SCIENCE B**

In Science B you will study Biology and Earth and Space Sciences, learning about the Universe, Earth's natural cycles and the human impact on these cycles. In Biology, you will study Genetics, looking at the way that genetic information is passed from one generation to the next. You will explore these ideas further by investigating applications of genetics in real life. You will consider the evidence for the theory of evolution and undertake a number of simulation activities to understand the process of natural selection. In Earth and Space Sciences, you will explore how our Universe is made, investigate the life cycle of stars and the evolution of galaxies. To further your understanding in this topic you will complete an annotated bibliography of astronomy articles. As a part of this topic you will also investigate climate systems and the effect of human activities on the climate such as global warming and rising sea levels.

The content covered in this subject is important preparation for VCE Biology. In addition to this, you will further develop the research skills that are required in VCE Biology, Psychology and VCE Chemistry.

## ***OTHER ELECTIVES***

### **AGRICULTURE**

Year 10 Agriculture will provide you with firsthand experience in the establishment and management of animals and plants which can be produced for profit. You will be expected to help feed and care for the animals kept on the school grounds and maintain their facilities. During the semester you will learn about: working safely on farms, the importance of soil, methods of growing plants and keeping animals, different agricultural industries and food and fibre production in Australia. You will also discuss any social, environmental and ethical issues within the agriculture or food industries. This course has a high practical component that will require you to work at the farm and carry out all necessary tasks in this environment; you will need to be involved in all aspects of developing and maintaining a vegetable garden and the care of all livestock kept at the farm. Assessments may include field work, investigations of issues and presentations to other classes.

### **ART**

Year 10 Art is for students who are keen to explore ideas and messages through Art and to develop skills in preparation for VCE Art/Studio Arts. You will continue to develop skills in the areas that were covered in the core course in Year Seven and the elective courses in Years Eight and Nine. Specific areas of study include painting, print-making, drawing, sculpture, ceramics and mixed media. You will build up a folio of work as well as accompanying development work in your visual art diary. There is an emphasis on you learning and exploring new techniques to express individual themes and ideas through the making of art. In theory lessons you will study a range of art periods and artists to complement the themes that are explored and the materials and techniques used in the practical assignments. You will research the work of a variety of Australian and International artists and study the influences they have had on artworks and art processes. The study of past and contemporary artists and their work practices will be assisted through relevant excursions and research trips or visiting artists.

### **BAHASA INDONESIA – single semester or full year**

Indonesian in Year 10 is a course intended to prepare students to undertake VCE Indonesian Units 1 and 2 in Year 11. You have the choice of studying Indonesian over either a full year or single semester. By studying Year 10 Indonesian you will have the opportunity to adjust to the requirements of VCE. While studying Indonesian over a full year will give you greater exposure to Indonesian, and a more gradual transition, a single semester of Indonesian will still provide you with the necessary skills to undertake VCE Indonesian. The course is designed to build upon previous learning with students moving towards greater fluency in the language, so you should take your results in Indonesian in previous year into account when considering this subject. Indonesia is Australia's largest close neighbour with a population of more than 200 million people and is expected to become the world's tenth biggest economy by 2025 so there are lots of opportunities for 'Indonesia savvy' people in areas such as law, engineering, diplomatic relations, business and trade, defence, tourism and education.

## **COMPUTER AIDED DESIGN (CAD)**

Year 10 Computer Aided Design is recommended if you are interested in selecting VCE courses such as Product Design and Technology and/or Visual Communication and Design in the future. This elective offers you a unique opportunity to gain the necessary skills to use Adobe Illustrator, SketchUp, Autodesk products such as AutoCAD, Inventor and Fusion 360 software to design, model and create realistic renderings of structures and everyday products. The focus of this course is on designing and creating parts, assemblies and fully dimensioned and annotated working drawings. The focus of the CAD course is on the design process, ergonomics, real-life use of CAD for manufacturing, architectural, and environmental considerations within design. You will explore the many functions within the Autodesk design academy suite which allows for easy manipulation of models. You can also view models as animations, place them in virtual environments or finally construct them using 3D printing and laser cutting technology.

## **COMPUTER PROGRAMMING**

Year 10 Computer Programming will introduce you to computer programming using Microsoft Visual Studio 2010 Express. Some areas that will be incorporated into the course are the introduction to the science of computer programming; problem solving techniques, including algorithm design (N-S Diagrams); and good programming practice, conventions and formats. On completion of this unit you will be able to write well-structured programs of moderate complexity. You will be able to compile programs and have a sound understanding of computer programming principles, including control structures, variables and constants, IF statements and the Visual Basic language. You will create fully functioning computer programs that can operate in a Windows environment.

## **COMMERCE – The World of Business**

Year 10 Commerce will provide you with the skills necessary to understand how successful small businesses operate, and the factors in the economy that contribute to their success or failure. You will gain an understanding of the world of commerce by investigating a range of practical case studies. This course also looks at developing your awareness of personal finance. You will gain an understanding of the basic concepts relating to Accounting, Business Management and Legal studies. If you do not intend to pursue these subjects in Year 11, you will still gain an understanding of how the business world operates.

## **DIGITAL TECHNOLOGY**

In Year 10 Digital Technology you will learn how to analyse information problems and create solutions using technology. In doing so, you will use a variety of software, techniques and procedures for processing and communicating information so that you can develop and produce solutions to meet specific needs. The course is designed for you to develop skills in preparation for VCE Computing. The subject includes content on creating, using and manipulating databases, using Adobe Dreamweaver to create a website on data security, data handling and spreadsheets. Theory content will allow you to discover the composition of an information system and the meaning of the Information Processing Cycle.

## **DRAMA – THEATRE CRAFT**

In Year 10 Drama – Theatre Craft (Semester One), you will develop your skills in theatre stagecraft. You will explore in detail a variety of theatre crafts including lighting, sound, hair, make up, set design, stage management, properties and costumes. You will nominate one theatre craft in which you will become an 'expert'. You will put your skills into practice through the planning and implementation of a specific theatre craft within the staging of the Middle School Play.

\*NOTE: If you choose Drama – Theatre Craft you are required to provide and wear protective work toe shoes.

## **DRAMA – THEATRE STUDIES**

In Year 10 Drama – Theatre Studies (Semester Two) you will develop your core acting skills. The elective will serve as an excellent introduction to the Theatre Studies subject so you can assess the viability of taking this subject in VCE. You will learn about the history of theatre and the different forms it has taken over the years. You will then implement these skills through a series of mini performances. You will gain both a theoretical and practical understanding of a variety of stagecraft. This will then be applied through a series of scripts as you implement the Production process, in the development and performance of both group and solo pieces.

\*NOTE: If you choose Drama – Theatre Studies you are required to provide and wear Drama Blacks and will be required to participate in the College Play.

## **FOOD TECHNOLOGY**

Year 10 Food Technology provides you with the opportunity to explore food-related issues through a range of practical experiences. You will gain knowledge on key nutrients in order to recognise the importance of good nutrition throughout life. Topics covered include food selection and health, food service and catering, preservation techniques, food equity and trends. You will develop the ability and confidence to design, produce and evaluate solutions to situations involving food. You will learn to select and use appropriate ingredients, methods and equipment safely and competently. These skills can then be applied to a range of contexts enabling you to produce quality food products. One of the topics covered later in the semester is Café Culture, where you will learn the skills of a barista and have the opportunity to work on a small catering event.

## **MEDIA 1 - THE GROUP PROJECT**

Media aims to develop and deepen student understanding of different media forms and the designing, planning and process of producing media products. The projects will be created using iPads, HD cameras and Apple computers in the media room and collated into multi-media journals published on MyAitken. In Media 1, you will study two films of a similar genre to understand how narrative (story) structure works and is told through the use of different production and story elements and techniques. You will then take this new understanding of the elements and genre conventions and in small groups apply it to your own short film productions. You will also learn about the different jobs in the film industry and take on those roles to develop new production skills. Finally, you will look at how different groups are represented in the media, how the audience uses and consumes media and the media's role and influence within society past, present and into the future.

## **MEDIA 2 - THE SOLO PROJECT**

Media aims to develop and deepen student understanding of different media forms and the designing, planning and process of producing media products. The projects will be created using iPads, HD cameras and Apple computers in the media room and collated into multi-media journals published on MyAitken. In Media 2, you will study several different films from the same director, analysing the distinct individual style that director brings to their projects and how it has developed over the course of their career. You will individually research and develop a plan, scripts, storyboards and schedules for a media production, using the conventions and styles of a particular genre and audience. You will then put your design plan into action and create your media product, developing your own production skills working on your own and other students' projects.

## **MUSIC INDUSTRY (Certificate II) – single semester or full year**

Certificate II in Music Industry provides students with the practical skills and knowledge to perform and compose music. The course reflects the role of individuals within the music industry, introducing them to the concepts of musicianship, music composition, music literacy, music performance and the use of social media for collaboration and engagement. This subject is an ideal introduction for students interested in studying VET Music Industry (Performance), which could lead to careers in performance, music management and music promotions, or VET Music Industry (Sound Production), which could lead to careers such as audio engineering, sound design and composition.

\*NOTE: Students wishing to obtain the Certificate qualification must study Music in both semesters.

## **OUTDOOR ENVIRONMENTS**

In Year 10 Outdoor Environments you will explore a variety of natural outdoor environments and consider how they were formed as well as the adventures that each earthly formation can offer. Alpine mountains create snow-slopes for carving, as well as roaring river rapids for paddling. Cliffs provide not only a perfect platform for viewing star constellations, but also rock walls for our climbing pleasure. And let's not forget the Australian coast, which is home to some of the world's most amazing surf. The science behind each of these outdoor pursuits will be a major focus of this unit. Urban adventures and sustainable development will also be covered. The unit will cover four topic areas, each of which will require your participation in related incursions, excursions and other practical activities: forces of the Earth; natural environments (bush, river, rock and alpine); preserving natural environments; and practical skills for travelling in outdoor environments.

## **PHOTOGRAPHY**

In Year 10 Photography you will study the art of composing photographs that capture a range of themes, moods and effects. You will also learn how to use the various creative functions of the digital SLR camera. Digital manipulation of photographs will also be explored using Adobe Photoshop. The theory component of the course will involve a study of some of the world's master photographers. We will explore their ideas and analyze the artistic qualities and technical aspects of their work. An important part of the practical course is the photo-shoot excursion, usually to Werribee Park. This gives you the opportunity to practise your camera skills in a beautiful environment. You will prepare for the day with themed ideas and plans. The use of costumes and props is encouraged to further enhance the creativity of your photographs. You will then create a folio of your completed images for assessment. The skills gained in Year 10 Photography can lead to further studies at Year 11 in Art, Media and VCD.

## **PRODUCT DESIGN**

Year 10 Product Design provides you with a great opportunity to develop your creativity, problem solving techniques and practical skills. You will investigate, design, produce and evaluate your work according to a Design Brief. This involves understanding design specifications, investigating and developing design options, materials selection and making informed choices regarding style, joining methods and finish. You will learn about the sequence and processes involved in the development of the final product. These include both freehand sketches and Computer Aided Design (CAD). You will learn how to produce high quality presentation and working drawings, which will include detailed dimensions and annotations. You will learn about the different design factors and how they affect the design and performance of products. Emphasis is given to creative design, construction techniques and the safe use of a range of simple and more sophisticated hand and portable power tools.

## **VISUAL COMMUNICATION AND DESIGN**

The Year 10 Visual Communication and Design course aims to prepare you for VCD in VCE. You will be taught to draw using freehand and technical drawing systems (e.g. paraline and perspective drawing). You will be set a number of design briefs for which you must produce a creative and suitable solution. Throughout the design process you will learn to apply different design approaches and media in your own work. Projects include instrumental drawing, product design, computer enhanced imagery, packaging and symbology. You will complete a folio of work including development work in your visual diary. Various aspects of theory such as the use of design elements, principles and the design process will be taught in this subject. You will research various product, information and environmental designs. Technology will be integrated into the subject with the use of computer software programs such as Adobe Photoshop and Illustrator. Viewing videos and attending relevant excursions or presentations by visiting artists may occur to complement the study of visual communication.