



ILLAWARRA  
CHRISTIAN  
SCHOOL

# STAGE 5 HANDBOOK 2018

4 Tyalla Place  
Cordeaux Heights  
NSW 2526

PO Box 380  
Unanderra NSW 2526

p: 4239 520  
e: [admin@ics.nsw.edu.au](mailto:admin@ics.nsw.edu.au)  
[ics.nsw.edu.au](http://ics.nsw.edu.au)



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## Introduction to Handbook

The beginning of Year 9 represents a new step in a student's career at Illawarra Christian School, Cordeaux Campus in that he or she has the opportunity for the first time to specialise in some areas of study.

All students continue to study the core subjects of English, Maths, Science, History, Geography, Biblical Studies and Personal Development/Health/PE, as well as Sport. All Board of Studies endorsed courses will appear on the Record of Student Achievement (RoSA) received at the conclusion of the student's schooling.

In addition to the mandatory course, there are choices to be made among elective subjects. They are outlined later in this booklet.

The ways in which these choices are made will vary from student to student, but the following guidelines are generally applicable:

- a student may wish to consolidate an academic direction by taking one of the subjects in this field;
- he or she may wish to take the opportunity to diversify their studies by including a course from the practical and creative fields;
- there may be a desire to test out a particular area of giftedness.

Students and their families are able to consider together the possibilities which seem to be emerging for each individual. Years 9 and 10 allow for diversification into areas which may not necessarily be studied at a higher level. Few of the courses are pre-requisites for future study, although some provide a useful background for Senior work.

We have sought to provide a selection of courses which will enable students to develop their God-given abilities and equip them for effective service in His world.



## The Selection Process

### How It Is done?

Years 9 and 10 students at Illawarra Christian School, Cordeaux Campus are offered a program of electives which involves a two year cycle that enables students to study between two to four electives in Stage 5 of the curriculum. Students in Year 9 can opt to study an elective for 12 months, completing a 100 hour course, and choose an additional elective for Year 10, or they may elect to study that elective for an additional 12 months and complete 200 hours of their elective course.

Electives will consist of students from both Year 9 and Year 10. Each elective will run two 100 hour course studied over 12 months on a 2 year cycle ensuring that no student is disadvantaged by not studying them in a different order or by covering the same material twice. Each elective studied in Stage 5 will appear on the student's Record of Achievement (RoSA) whether completed in Year 9 or Year 10.

Possible patterns of study:

Student	Year 9	Year 10	Hours of Study
Student A	Elective 1	Elective 1	200
	Elective 2	Elective 2	200
Student B	Elective 1	Elective 1	200
	Elective 2	Elective 3	2 x 100
Student C	Elective 1	Elective 3	2 x 100
	Elective 2	Elective 4	2 x 100

This method of staged electives is successfully offered in many schools around the state and enables students a greater choice in electives each year, giving greater access to their preferred electives.



## How do I choose?

**Ask** yourself and your family ...

What am I good at?

(These answers sometimes point to gifts God has given you.)

What do I enjoy doing?

**Ask** your teachers...

About the courses in more detail.

About their perceptions of your gifts.

**Ask** students who have done the courses before you

*and pray.*

## What if I change my mind?

That's okay. Sometimes students discover that they would like to change their selection after this has all taken place, and there is provision for this, so long as the choice is from the offered subjects on the same line and there is space in the preferred elective. Please advise the Secondary Coordinator as soon as you are aware of the decision. Such notification must be accompanied by a letter from parents.

Courses may be changed after the beginning of each year. The Board of Studies permits such changes up to the end of Term 1, but not after. As a school, however, we would advise a change within the first 3 or 4 weeks of the year as it can be very difficult to catch up the work of the new course when more time has elapsed.

## Which teachers should I talk to?

Should you require any further information about any of the courses outlined in this booklet, please feel free to contact the teacher(s) listed below – we would be delighted to help. Please phone the school office so that an appointment or phone conversation can be arranged.

Subject	Teacher(s)
Visual Arts	Mrs Dodd
Drama	Mrs Lainson
Music	Mrs Joyce
Food Technology	Mrs Hewitt or Mrs Whitelock
Textiles Technology	Mrs Whitelock
Industrial Technology – Timber	Mr Whitelock
Industrial Technology – Multimedia/Photography	Mr Spreitzer
iSTEM	Mrs Shaw
Commerce	Mr Williams
Photography & Digital Media	Mr Spreitzer
Physical Activities & Sports Studies	Mrs Kime
French	Mrs Williams
History (Elective)	Mrs Engel or Mr Russell
General Information regarding Electives	Mr Hewitt

# Food Technology

## THE NATURE OF THE COURSE

Through the study of Food Technology students undertake educational experiences that relate to meeting food needs and wants. This course is relevant to the whole of life as it involves an understanding of God's provision of food, how our bodies have been designed to function using the nutrients provided by food and how we can choose and use food domestically, commercially and globally to honour and obey God.

Food Technology aims to develop an understanding about food systems and skills that enable students to make informed decisions and carry out responsible actions. Students will also develop an appreciation of the importance of food to the wellbeing of the individual and to the social and economic future of Australia.

The course provides many opportunities to design and prepare a wide variety of foods and develops in the students advanced skills in food preparation and presentation.

## TOPICS COVERED IN THE COURSE MAY INCLUDE

- Food in Australia
- Food Equity
- Food Selection and Health
- Food Service and Catering
- Food for Special Needs
- Food Product Development
- Food for Special Occasions
- Food trends and Fashions



# Textiles Technology

## THE NATURE OF THE COURSE

Textiles Technology is a course designed to give opportunities

- to explore textile design
- to broaden knowledge of the properties and performance of textiles
- to study textiles within the context of society

## THE CONTENT OF THE COURSE

Project work forms the basis of every unit of work, thereby developing practical skills in designing, producing and evaluating.

The focus areas around which the units of work will be centred are:

- Apparel
- Furnishing
- Costume
- Textile Arts
- Non-apparel

This course offers an exciting and dynamic approach to textiles and aims to give students confidence in handling a range of textile applications and to expose them to a wide variety of construction techniques.



## Industrial Technology – Timber

### THE NATURE OF THE COURSE

Through the study of Industrial Technology students develop knowledge relating to current and emerging technologies in industrial and domestic settings. Students' study the interrelationship of technologies, equipment and materials used in a variety of settings and develop skills through hand-on interaction with these in the design, planning and production of timber based practical projects.

This subject provides opportunities for students to express the God-given gifts in their capabilities of design, planning and construction, as it fosters the concept of using ones' gifts and abilities to help others.

It also develops in students an understanding of related work environments and workplace health and safety (WHS) matters, instilling in them an awareness of the need for safety and mutual co-operation.

They will develop a range of skills that will equip them for future leisure and lifestyle activities, potential vocational pathways or future learning in the technology field.

### TOPICS COVERED IN THIS COURSE

This course covers many areas of timber technology, primarily through their application to practical projects. These include –

- Various timber materials and their application
- Equipment, machinery and tools
- Techniques of construction
- Industrial techniques, operations and career pathways
- Design development and implementation
- Workplace communication skills
- Societal and Environmental issues
- Health and Safety issues



# ISTEM

## NATURE OF THE COURSE

The aim of the iSTEM course is to promote the areas of science, technology, engineering and mathematics through the study of technology, engineering and mechanics.

Students will learn to use a range of tools, techniques and processes, including relevant technologies, in order to develop solutions to a wide variety of problems and challenges relating to their present and future needs and aspirations.

Students will undertake a range of inquiry-based (IBL) and project based (PBL) learning activities that occupy the majority of course time. Inquiry-based and project based learning assists students to actively pursue and use STEM based knowledge beyond the simple transmission of content. Thus in the course structure there are many points at which students raise questions and explore ideas.

### **Inquiry-Based Learning;**

- Involve students in initial exploration before ideas are introduced and explanations developed,
- Incorporate and value students' own questions,
- Involve open-ended investigation as part of the teaching sequence,
- Use activities to explore and develop ideas rather than simply demonstrate previously presented ideas.

### **Project-Based Learning;**

- Organised around an open-ended question or challenge,
- Creates a need to know essential content and skills,
- Requires inquiry to learn and/or create something new,
- Requires critical thinking, problem solving, collaboration and various forms of communication,
- Allows some degree of student voice and choice,
- Incorporates feedback and revision,
- Usually results in a publicly presented product or performance.

## THE CONTENT OF THE COURSE

This course covers a number of modules in the fields of technology and engineering. They include Engineering Fundamentals, Aerodynamics, Motion, Mechatronics and the Major Research Project.

Individual modules provide specific content related to CNC, mechatronics, aerodynamics, computer controlled machining, computer integrated manufacture, product modelling and testing which will be developed in the key areas of Skills, Technologies, Engineering Principles and Processes and Mechanics.

Each 100 - hour course is taught over one year of the Stage 5 elective.

<b>100 Hours</b>		<b>100 Hours</b>	
<b>Module 1</b> Engineering Fundamentals 25 Hours	<b>Module 2</b> Aerodynamics 25 Hours	<b>Module 4</b> Motion 25 Hours	<b>Module 5</b> Mechatronics 25 Hours
<b>Module 3</b> 3D CADE/CAM 50 Hours		<b>Module 6</b> Research Project 50 Hours	

## **Industrial Technology – Multimedia/Photography**

### **THE NATURE OF THE COURSE**

The Multimedia/Photography focus area provides opportunities for students to develop knowledge, understanding and skills in relation to multimedia, photographic and associated industries. Core modules develop knowledge and skills in the use of materials, tools and techniques related to multimedia or photography which are enhanced and further developed through the study of specialist modules in photographic or multimedia-based technologies.

Practical projects reflect the nature of the Multimedia/Photography focus area and provide opportunities for students to develop specific knowledge, understanding and skills related to multimedia and/or photography-related technologies.

### **KEY SKILLS DEVELOPED**

This course develops the following thinking skills:

- Creativity
- Innovative thinking
- Design thinking
- Problem solving
- Independent learning

### **PROJECTS CREATED IN THIS COURSE**

Students will produce the following projects of the scope of this course:

- Stop animation
- Short film making
- Interactive digital books
- Logo design
- Blogging
- Websites
- Game making

For those that enjoy project-based learning and multimedia production, Stage 5 Multimedia is a great course choice. It is also a great pathway subject for Stage 6 Industrial Technology (Multimedia) studies.

# Music

Music is a gift from God which can be used for the praise and worship of our Father and for our own enjoyment.

## THE NATURE OF THE COURSE

The music course is designed for students seeking to extend their experience and enjoyment of music. Students will achieve this through the integrated learning experiences of Performing (developing solo and ensemble skills), Composing (improvising, arranging for their class ensemble and creating new compositions) and Listening (analysing and understanding a range of styles).

## THE CONTENT OF THE COURSE

Students will study a wide range of musical styles from Jazz to Rock. They will actively engage with music software production/composition programs such as:

- Apple GarageBand
- Logic X
- Noteflight
- Mainstage

In addition to this, there will be generous opportunities for live performances through events such as:

- 'Sound Check' sessions (Live@Lunch performances)
- School event performances e.g. Twilight Fete
- Performing Arts evenings
- Bi-annual music festival

The music selected for this course will be a combination of both Christian and secular music. As the practical component will contribute towards their assessment students should have some experience or be willing to gain experience on an instrument/voice.

This is an excellent course for various types of students, including those who:

- enjoy music and/or singing for pleasure and would like to expand their knowledge and skill;
- enjoy performing and being creative with vocals and/or music;
- would like to develop their creative ability in music performance and composition;
- would like to develop the ability to converse confidently about a range of musical styles and genres, and to critique it in an informed manner;
- are considering studying Music for their HSC;
- would like to follow a careers in fields which require teamwork, self-discipline, leadership, effective verbal and non-verbal communication and good people skills.
- would like to play or sing in worship services or use music to minister to others.



# Commerce

## THE NATURE OF THE COURSE

God created all we see and have. People have always lived in a world of exchange and money but there is never enough to satisfy all our material desires. In Commerce we study these issues with regard to Biblical principles. The course content is taught in such a way as to encourage students to think Christianly about what God has given them and how they can use their resources wisely in His service. Students will be encouraged to apply the principles from Scripture to the reality of the commercial market place. Such an approach will help students to develop practical skills that are used in service of the Creator rather than purely for self gain.

Commerce enables young people to develop the knowledge, understanding, skills and values that form the foundation on which they can make sound decisions about consumer, financial, legal, business and employment issues. It develops in students the ability to research information, apply problem-solving strategies and evaluate options in order to make informed and responsible decisions as individuals and as part of the community.

## THE CONTENT OF THE COURSE

### What will students learn about?

- Students will study *Consumer Choice* and *Personal Finance*, learning about making responsible spending, saving, borrowing and investment decisions.
- Students may also study *Legal and Employment Issues*, in which they will develop an understanding of their legal rights and responsibilities and how laws affect individuals and regulate society. They also learn about commercial and legal aspects relating to employment issues, and their rights and responsibilities at work.
- Optional topics are selected from: Investing; Promoting and Selling; E-Commerce; Global Links; Towards Independence; Political Involvement; Travel; Law in Action; Our Economy; Community Participation; Running a Business; and a School-developed option.

### What will students learn to do?

Student learning in Commerce will promote critical thinking and the opportunity to participate in the community. Students learn to identify, research and evaluate options when making decisions on how to solve consumer problems and issues that confront consumers. They will develop research and communication skills, including the use of ICT, that build on the skills they have developed in their mandatory courses. Skills in personal financial management and advocacy for rights and responsibilities in the workplace will also be developed.

Students also participate in the ASX share market game, where they get to invest \$50,000 in real companies. Students also run commerce markets, learn how to create a marketing presentation and the process of buying cars, houses and other investments.

# Visual Arts

## THE NATURE OF THE COURSE

This course aims to develop and encourage:

- Christian attitudes and values in artwork
- Appreciation of and skills in God's gift of art
- Sensory awareness and imagination
- Visual expression using a wide range of media and techniques
- God given ability to think and act creatively
- Ability to make Christ-centred judgements about artworks and contemporary visual images, e.g. in the mass media
- Positive self concepts through faith, self expression and evaluation
- Awareness of art in the local community, Australia and beyond

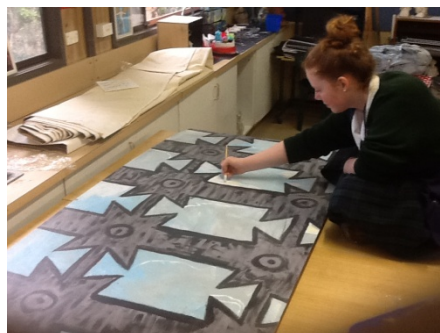
## THE CONTENT OF THE COURSE

The students will make and study a wide range of 2D, 3D and 4D artworks. These will include techniques of drawing, painting, printmaking, sculpture, ceramics, computer-generated images and designing.

Artworks will be made, investigated, interpreted and explained from a variety of subjective, structural, postmodern and cultural perspectives. These will include studies on the relationships between the artist, artwork, world and audience.

This is an excellent course for various types of students, including those who:

- enjoy being creative in the visual arts;
- would like to develop their creative skills in the visual arts;
- are looking for a subject to balance their more academic pursuits by providing a form of stress relief through the practical artmaking;
- would like to develop the ability to converse confidently about art and culture;
- would like to travel overseas;
- are considering studying Visual Arts for their HSC;
- would like to follow a careers in fields such as graphic design, architecture, ministry and missions, animation, film-making, landscape design, hairdressing and other creative fields.



# Drama

## THE NATURE OF THE COURSE

Drama in the junior secondary school aims to provide students with experiences in which the intellect, the emotions, the imagination and the body are all involved and developed through expression, performance, observation and reflection. Students learn about themselves and others by creating character situations, providing a powerful vehicle for exploring the way people react and respond to different situations, issues and ideas. It allows students to increase their self-confidence and social awareness. As a cooperative process, it helps to develop their ability to share and communicate.

Students are encouraged to do all of this in the light of a Biblical understanding of humanity and the rest of the creation, and from the perspective that gifts are to be nurtured for celebration and personal enjoyment, but more significantly, for the opportunities they afford for ministry to others. In the course we particularly aim to encourage the students' vision for the latter purpose.

## THE CONTENT OF THE COURSE

Aspects of the course include:

- Improvisation
- Developing their own performances
- Studying dramatic forms
- Working from published scripts
- Conventions of theatre
- Technical aspects of production
- Participation in dramatic presentations
- Critical analysis of drama and theatre

Assessment will be based on a range of components including participation in drama performance, writing skills, mastery of technical information, understanding of theatre, and response to drama as literature and in a performance context.

This is an excellent course for various types of students, including those who:

- enjoy going to the theatre and would like to expand their knowledge;
- are considering studying Drama for their HSC;
- would like to follow a careers in fields which require teamwork, good people skills and the ability to speak confidently to an audience, such as ministry and missions, events coordination, public relations, politics, psychology and the performing arts.

# Photographic and Digital Media

## THE NATURE OF THE COURSE

In this course students explore and understand the nature of photographic and digital media as an important field of artistic practice, conceptual knowledge and technological procedures. This Stage 5 course builds upon learnt information and skills taught in the Stage 4 Visual Arts mandatory course. It allows students to investigate photographic and digital media in greater depth, with the opportunity to use photographic and digital technologies as tools to develop their own work.

Students engage in learning about photography and digital media in print, interactive and moving forms. They develop their knowledge of the frames and conceptual framework through examining the conventions, history and relationships within photography and the world. Students also investigate artists and photographers from a range of eras and periods, including contemporary artists and emerging technologies.

## THE CONTENT OF THE COURSE

Topics covered in this course:

- History of Photography
- Master Photographer studies
- New and emerging media and artists
- Still photography – urban, portrait etc
- Movie making
- Digital manipulation – using Photoshop CS5.5 for creating conceptual works

This is an excellent course for various types of students, including those who:

- enjoy being creative;
- practise photography as a hobby;
- would like to develop their photographic ability and knowledge;
- would like to develop their ability to use digital technology for artistic purposes;
- would like to develop the ability to converse confidently about art and culture;
- would like to travel overseas;
- are considering studying Visual Arts and/or IT Multimedia for their HSC;
- would like to follow a careers in fields such as IT, photography, marketing, public relations, journalism, ministry and missions;
- are motivated to learn from the master photographers of the past.



# Physical Activity and Sports Studies

## THE NATURE OF THE COURSE

Physical Activity and Sports Studies represents a broad view of physical activity and the many possible contexts in which individuals can build activity into their lifestyle. It incorporates a wide range of lifelong physical activities, including recreational, leisure and adventure pursuits, competitive and non-competitive games, individual and group physical fitness activities, and the use of physical activity for therapy and remediation.

The aim of the *Physical Activity and Sports Studies* is to enhance students' capacity to participate effectively in physical activity and sport, leading to improved quality of life for themselves and others.

The course is structured with 50% of lessons focusing on theory content and 50% of lessons learning through movement activities and sport.

Students will be supported to gain qualifications as a sporting umpire or referee and to understand the safety and organisational elements of coordinating a sporting event.

Many aspects of the course are explored through participation in selected movement applications in which students experience, examine, analyse and apply new understanding. Students are encouraged to specialise and study areas in depth, to work towards a particular performance goal, pursue a formal qualification or examine an issue of interest related to the physical, emotional, social, cultural or scientific dimensions of physical activity and sport.

## TOPICS COVERED IN THIS COURSE

The content is organised in modules within the following three Areas of Study:

- Body Systems
- Sporting Event Management
- Fundamentals of Movement
- Participating with Safety
- Physical Fitness



# French

## THE NATURE OF THE COURSE

Learning a Second or foreign language is a meaningful, enjoyable and beneficial undertaking. Language learning equips students with linguistic skills which enhance their literacy abilities and improve employment prospects (in foreign language sectors or international organizations). It provides students exposure to another culture and nurtures inter-cultural understanding. More importantly, learning a foreign language trains students in how to live and relate to others as God wants – both at home as provider of hospitality to those new to the country, and abroad as a stranger in a foreign country.

Students in the elective class have all had some previous experience of language learning, predominantly one year of French in Year 7. This unit aims to revise students' learning from that course and build upon it, enabling students to interact meaningfully with others. This will be achieved primarily through immersive activities (singing, playing, making), deconstructing authentic French texts (written, spoken, and visual) and through games, explicit grammar instruction and conversations (in French).

## THE CONTENT OF THE COURSE

4 of these 8 topics will be covered in one year of the Stage 5 course.

**Pendant les Vacances** – revising and developing language skills, including aspects of French grammar, in the context of a holiday theme.

**Tous les jours** – a series of practical language tasks involving everyday activities such as reading recipes, discussing modes of travel or listening to songs.

**En ville** – focusing on language relating to places in a town, shopping, buying tickets, choosing clothing.

**Autour du Monde** – building our understanding of French speakers around the world – their history, cultures, beliefs and the social issues they confront.

**Ma famille** - learning to talk about and talk with friends and family.

**À Table** – learning about French food culture through cooking.

**On joue** – increasing fluency through play-acting.

**Creatif** – exploring French art and artists

This is an excellent course for various types of students, including those who:

- would like to develop the ability to converse confidently with people from other cultures;
- would like to travel overseas;
- are considering studying French for their HSC;
- would like to follow a career in a field which requires good language and people skills combined with cultural awareness and sensitivity, such as ministry and missions, events coordination, public relations, politics, sales and marketing, public relations, medical and health services, teaching, journalism, the diplomatic service, the defence force.

# Elective History

## THE NATURE OF THE COURSE

Elective History is a course designed to give students who love history an opportunity to pursue their interest and develop their skills in this subject. It is a separate course to Mandatory History which all students study in Stage 5. Elective History is one of the most interesting BOSTES subjects available as it allows for the study of many historical subjects that are not covered by other history courses.

All history happens under the sovereign hand of the Lord God. This course gives students greater opportunity to consider their world and man's place in it under the Lordship of Jesus. As students explore the past and develop a critical understanding of it, they will develop their ability to see the way God has worked and continues to work in the world, while thinking through the impact of man's sinfulness and need for a saviour.

In Elective History students will gain:

- A love of history that they will draw upon all their life as they move into the world
- Development of critical thinking skills that will help in senior school and be used in any occupation requiring analytical thinking, problem solving, decision making, and oral and written communication skills.
- Wonderful positive engagement and fun!

## The Content of the Course

The exciting thing about this course is that it offers the ability to investigate so many areas of interest that are not part of the regular history syllabus. Units studied will be drawn and devised from each of the topics below:

<b>Topic 1: Constructing History</b>	<b>Examples include:</b> Biography Family history Film as history Historical fiction Heritage and conservation History and the media Local history Oral history Museum and/or archives studies Historical reconstructions History websites
<b>Topic 2: Ancient, Medieval and Early Modern Societies</b>	<b>Examples include:</b> Archaeology of the ancient world The Americas Literature of the ancient world The Pacific Medieval and early modern Europe Africa The ottoman Empire An Asian study
<b>Topic 3: Thematic Studies</b>	<b>Examples include:</b> Children in history Heroes and Villains Religious beliefs and rituals through the ages Sport and Recreation in history Crime and Punishment War and peace World myths and legends Slavery Music through history Terrorism Women in history

# Mathematics

## NATURE & CONTENT OF THE COURSE

Students select to study either 5.1, 5.2 or 5.3. The majority of students study either 5.2 or 5.3.

### 5.1 Mathematics

Students who have achieved Stage 5.1 outcomes explain and verify mathematical relationships, ask and explore questions which can be solved using mathematics, and link mathematical ideas to existing knowledge and understanding. They use mathematical language and notation to explain mathematical ideas, and interpret tables, diagrams and text in mathematical situations. Students achieving Stage 5.1 outcomes are recommended to study Mathematics Standard in Stage 6 (years 11 & 12). Consultation with Mathematics staff regarding the most suitable course for each student is highly recommended.

Students apply their knowledge of percentages, fractions and decimals to problems involving consumer situations related to earning and spending money, and simple and compound interest.

They simplify and evaluate arithmetic expressions using index laws and express numbers in scientific notation using both positive and negative powers of ten. Students determine relative frequency and theoretical probability.

Students apply the index laws to simplify algebraic expressions. They determine the midpoint, length and gradient of intervals on the number plane and draw graphs of linear and simple non-linear relationships.

Their statistical skills are extended to include grouping data into class intervals and constructing and interpreting cumulative frequency tables, histograms and polygons.

Skills in measurement are further developed to include the use of formulae when calculating the area and perimeter of composite figures. Students apply right-angled triangle trigonometry to practical situations including those involving angles of elevation and depression.

### 5.2 Mathematics

Students who have achieved the syllabus outcomes, up to and including Stage 5.2 outcomes, ask questions that can be explored using mathematics, and use mathematical arguments to reach and justify conclusions. When communicating mathematical ideas, they use appropriate mathematical language and algebraic, statistical and other notations and conventions in written, oral or graphical form. Students use suitable problem-solving strategies which include selecting and organising key information and they extend their inquiries by identifying and working on related problems. Students achieving Stage 5.2 are recommended to study Standard Mathematics in Stage 6 (years 11 & 12). Consultation with Mathematics staff regarding the most suitable course for each student is highly recommended.

Students apply their knowledge of percentages, fractions and decimals to problems involving conversion of rates and consumer situations related to compound interest, depreciation and successive discounts. They express recurring decimals as fractions, and round numbers to a specified number of significant figures.

Students solve non-routine problems in algebra and apply the index laws to simplify, expand and factorise algebraic expressions. They solve linear equations and simple quadratic equations, inequalities and simultaneous equations. On the number plane they draw and interpret graphs of straight lines, simple parabolas, hyperbolas and graphs of physical phenomena. Formulae are used to find distance, gradient and midpoint.

Statistical skills are extended to include descriptions of distributions and the construction of box-and-whisker plots. Student analysis of data includes determining upper and lower quartiles and standard deviation.

Students extend their skills in measurement to calculations of the area and perimeter of complex composite figures, the volume of pyramids, cones, spheres and composite solids, and the surface area of cylinders and composite solids. In geometry, they use deductive reasoning in numerical and non-numerical problems drawing on their knowledge of the properties of similar and congruent triangles, the angle properties of polygons and the properties of quadrilaterals, including diagonal properties.

### 5.3 Mathematics

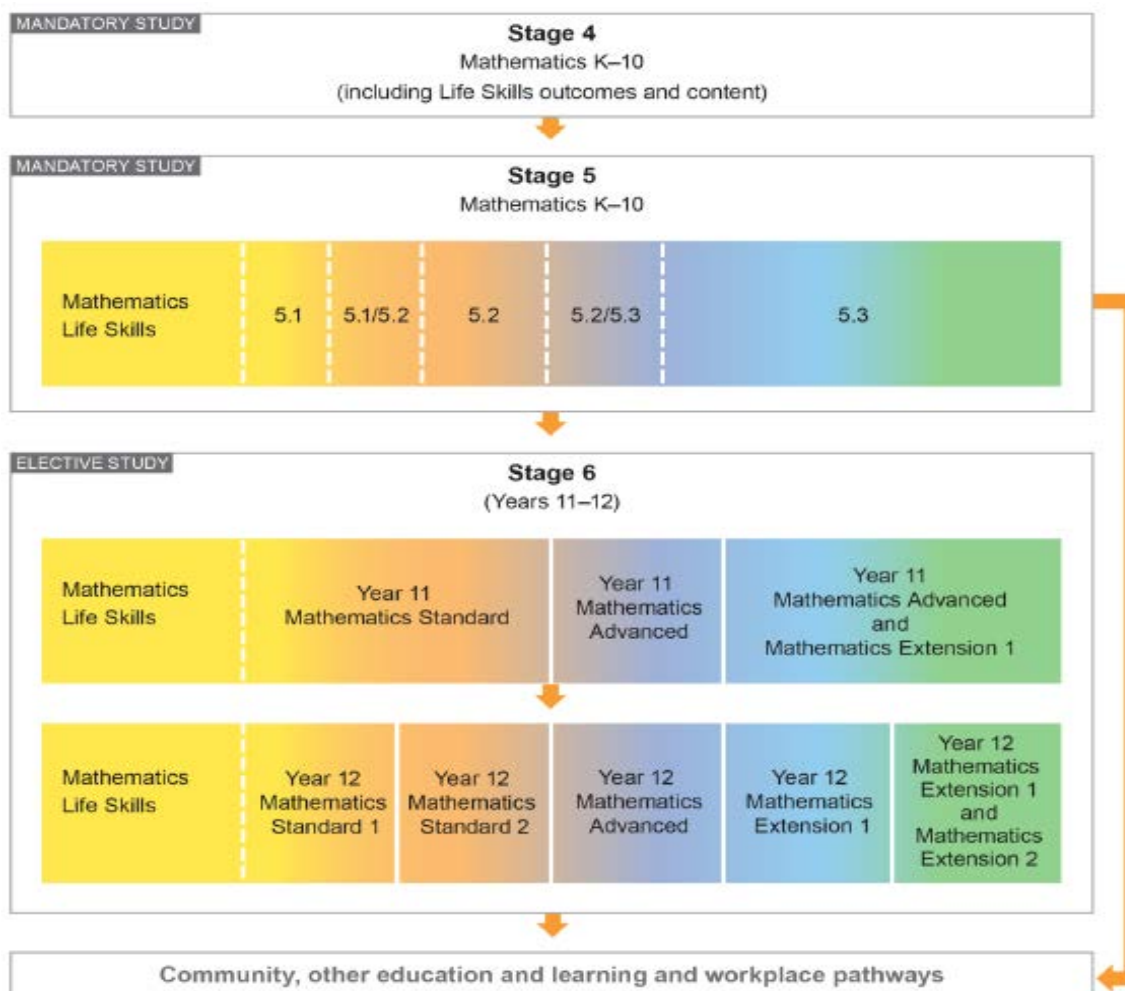
Students who have achieved the syllabus outcomes, up to and including Stage 5.3 outcomes, use deductive reasoning in problem solving and in presenting arguments and formal proofs. They interpret and apply formal definitions and generalisations and connect and apply mathematical ideas within and across topics. Students who have achieved the outcomes in 5.3 are recommended to study Mathematics Advanced in Stage 6. Students who have achieved the outcomes in 5.3 and achieved at least a B8 in their ROSA for Stage 5 are recommended to study Extension 1 Mathematics in Stage 6. Consultation with Mathematics staff regarding the most suitable course for each student is highly recommended.

Students calculate the probability of compound events, operate with irrational numbers and extend their knowledge of the number system to include all real numbers. They apply algebra to analysing and describing physical phenomena and rates of change. Algebraic skills are extended to expanding binomial products, factorising quadratic expressions, and solving literal equations, inequalities, quadratic and simultaneous equations. They generate, describe and graph equations of straight lines, parabolas, cubics, hyperbolas, circles and exponential functions, and are able to graph regions determined by inequalities.

Students calculate the surface areas of pyramids, cones and spheres and explore and use similarity relationships for area and volume. They determine exact trigonometric ratios for  $30^\circ$ ,  $45^\circ$  and  $60^\circ$ , extend trigonometric ratios to obtuse angles and sketch sine and cosine curves. Students apply the sine and cosine rules for finding unknown angles and/or sides in non-right-angles triangles.

Their knowledge of a wide range of geometrical facts and relationships is used to prove general statements in geometry, extending the concepts of similarity and congruence to a more generalised application. Students prove Pythagoras' theorem and the properties of triangles and quadrilaterals.

## PATHWAYS FOR LEARNING IN MATHEMATICS



## **Illawarra Christian School**

### **Stage 5 Courses for 2018**

Below are the lists of subject choices that are available for Stage 5 in 2018

Line 1	Line 2
Drama	Commerce
Multimedia	Textiles
Commerce	iSTEM
French	Photography & Digital Media
Visual Arts	Music
Food Technology	PASS
Industrial Technology Timber	History (Elective)

A link for Stage 5 Elective Courses will be emailed to every student tomorrow evening.

Using the online forms indicate your 2018 elective preferences

There will be two links one for Line 1 and one for Line 2.

Complete the online form by Tuesday 30<sup>th</sup> May 2017. Preferences will be processed in the order in which they are received.