LAKE ILLAWARRA HIGH SCHOOL

ELECTIVE CHOICES

FOR

YEARS 9 & 10

2017 & 2018

Next year, for the first time since you have been at High School, you will be given the choice of the elective subjects you wish to take. This means you will be able to choose 3 courses for 6 periods each per cycle in Years 9 and 10.

Whilst you should keep in mind what you wish to do in Years 11 and 12 and what you would like to do when you leave school, your subject selections should be based on courses you find interesting and have some ability in. You should also read the schedule of fees for elective courses *(included in the relevant subject outlines)*.

It may be hard to know if you are suited to some subjects that are new to you so we have provided a brief description of all the courses offered in this booklet. Teachers have been to your classes to give you further information about courses.

You will still study English, Mathematics, Science, History, Geography, PE and Health. No longer will Design & Technology, Music, Art be compulsory, although they may be found along with other choices in the elective list.

The following pages outline the elective subjects on offer.

Elective Course: Agricultural Technology

Course Description

The study of Agricultural Technology develops student knowledge and understanding of agricultural enterprises and the practices and skills required in producing plant and animal products. Students will develop skills in the effective management of sustainable production and marketing practices that are environmentally and socially responsible.

Main Topics Covered

To satisfy the mandatory requirements of this 200-hour course students must complete the essential content within the context of a minimum of four agricultural enterprises.

Essential content
* The essential content integrates the study of interactions, management and sustainability within the context of agricultural enterprises. Students will also undertake a range of related practical activities.
  Interactions — the relationship between biological, physical and social components in agriculture. Fundamental to balance the economic viability while sustaining the biological and physical basis of the farming systems employed.
  Management — informed decision-making and effective management of agricultural enterprises. Physical, biological, economic, environmental and social factors must be considered in the management of agricultural enterprises.
  Sustainability — practices that conserve soil and water quality and protect the environment, assure adequate and safe food supplies to consumers, while generating profitable returns for producers.

Agricultural enterprises are characterised by the production and sale or exchange of agricultural goods or services. Agricultural enterprises may focus on plants or animals or integrated plant/animal systems. Both intensive and extensive enterprises are to be incorporated into the course of study for students to gain an understanding of the diverse nature of Australian agriculture.

Practical experiences should occupy a minimum of 50% of allocated course time. It is expected that students engage in experiences relevant to all aspects of the enterprises studied. These experiences may include fieldwork, small plot activities, laboratory work, plant and animal husbandry activities, and visits to commercial farms and other parts of the production and marketing chain.

Please note: Practical experiences can and will be messy tasks. Students must be willing and prepared to get their hands dirty during practical activities.

Course Requirements

Fees: $20 per year. *It is also recommended that students purchase a pair of gardening gloves, broad brimmed hat and gumboots.*

Year 9 - $20 to cover materials
Year 10 - $20 to cover materials

Elective Course: Child Studies

Course Description

This course aims to raise student's awareness about choices we have in our society today.

Students gain practical knowledge and experience in all aspects of child growth and development, and skills in providing for young children.

Main Topics Covered

- Starting Life – conception to birth
- The Developing Child – birth to 5 years
- Children and Nutrition – feeding babies and children
- Safety and Children
- How Children Learn
- Children and Play
- Working with Children
- Practical applications such as making children's books, toys, baby's blanket, nursery items and organising playgroup may be included.

Options:
- Multicultural influences on Children
- Children and Health
- Contemporary Family Issues

Course Requirements

Subject fee:

Year 9 - $20 to cover materials
Year 10 - $20 to cover materials

Elective Course: Commerce

Course Description

Commerce is a valuable educational experience, which exposes students to a wide range of personal and financial matters, which are becoming an increasing part of their lives now and in the future. It will give students a better understanding of legal and consumer issues that are relevant to their lives as well as a sound understanding of our government framework.

Students will play the Stock Market Game and participate in classroom trials in the Legal Unit, complete tax returns and other financial records. It includes regular excursions to local venues to research various topics.

Main Topics Covered

- Consumer Choice
- Personal Finance
- Law Society
- Investing
- Promoting and Selling
- Travel
- Law in Action
- Running a business
- Our Economy
- Global Links

Course Requirements

No subject fee

Elective Course: Design and Technology

Course Description

Design and Technology develops a student's ability for innovative and creative thought through the planning and production of design projects related to real-life needs and situations. The design and development of quality projects gives students the opportunity to identify needs and opportunities, research and investigate existing solutions, analyse data and information, generate, justify and evaluate ideas, and experiment with tools, materials and techniques to manage and produce design projects.

What will students learn about?

All students will learn about the design, production and evaluation of quality design solutions. They will learn about a range of design processes, the interrelationship of design with other areas of study and the activity of designers over time, across a range of areas.

What will students learn to do?

Students undertaking Design and Technology will learn to be creative and innovative in the development and communication of solutions to problems relating to design and designing.

Students will learn to identify, analyse and respond to needs through research and experimentation leading to the development of quality design projects. They will learn to access, manage and safely use a range of materials, tools and techniques to aid in the development of design projects and to critically evaluate their own work and the work of others.

Examples of project could include:

- Wearable fashion and accessories – including clothing and fashion bags
- Fabric decoration such as dying and printing
- Interior design – eg. Wall hangings and mirror mosaics
- Jewellery design – including bracelets, bangles and earrings
- Food and menu design such as food styling and creating food dishes

Course Requirements

Subject fee:

Year 9 - $20 to cover materials
Year 10 - $20 to cover materials

- Students may need to purchase additional materials depending on the design projects.
- All students will need to provide an A4 display folder to present their design folio.

Elective Course: Food Technology

Course Description

This two-year course aims to raise students' awareness and knowledge about the domestic, commercial and industrial applications of food technology. It involves students investigating food through practical applications and processes such as designing, researching, making and managing.

Main Topics Covered

- Food in Australia – from bush tucker to multicultural cuisine
- Food Selection & Health – food decisions for good health
- Food Product Development – how new foods are created
- Food Equity – the global food supply
- Food Trends – the way society influences our food habits
- Food for Special Needs – how lifestyle, age and culture affects food choices
- Food Service & Catering – learn how to prepare food suitable for a café and serve coffee
- Food for Special Occasions – historical and cultural use of foods for festivities

Course Requirements

Subject Fee:

Year 9 - $80 to cover materials
Year 10 - $80 to cover materials

Uniform requirements

- Fully enclosed, leather-upper shoes are compulsory for this subject – canvas shoes are not acceptable.
- Apron and tea towel are optional
- Hair must be tied back or covered with optional hat.

Elective Course: Graphics Technology – Technical Drawing

Course Description

Students who select this course will develop an understanding of the significance of graphical communication and the techniques and technologies used to convey technical and non-technical ideas and information.

Main Topics Covered

The following areas of work will be covered in Years 9 and 10:

- Engineering Drawing
- Architectural Drawing (Home Design)
- Computer Aided Design (CAD)
- Pattern Design
- Pictorial Representation
- Graphical Rendering
- Design
- WH & S
- Workplace Communications

Skills Developed

Students will develop knowledge, understanding and skills to:

1. Visualise, sketch and accurately draw shapes and objects to communicate information to specific audiences.
2. Interpret, design, produce and evaluate a variety of graphical presentations using a range of manual and computer-based media and techniques.
3. Use graphics, conventions standards and procedures in the design, production and interpretation of a range of manual and computer-based graphical presentations.
4. Select and apply techniques in the design and creation of computer-based presentations and simulations to communicate information.
5. Apply Occupational Health and Safety (OHS) practices and risk management techniques to the work environment.
6. Appreciate the nature and scope of graphics in industry and relationships between graphics technology, the individual, society and the environment.

Course Requirements

No subject fee

Elective Course: Industrial Technology – Metal

Course Description

Students who select this course will begin graded projects to develop skills and knowledge in the use of materials, tools and techniques related to metal.

Main Topics Covered

The following areas of work will be covered in Years 9 and 10:

- Sheet Metalwork
- Metal Machining
- Metal Fabrication
- Welding
- Design
- Industry Links
- WH & S and Risk Management
- Workplace Communications

Skills Developed

Students will develop:

1. Knowledge of and competence in applying Occupational Health and Safety (OHS) risk management procedures and practices.
2. Knowledge, skills and an appreciation of quality in the design and production of practical projects.
3. Knowledge and understanding of the relationship between the properties and materials and their applications.
4. Skills in communicating ideas, processes and technical information with a range of audiences.
5. An appreciation of the relationship between technology, leisure and lifestyle activities and further learning.
6. The ability to critically evaluate manufactured products in order to become a discriminating consumer.
7. Knowledge and understanding of the role of traditional, current, new and emerging technologies in industry and their impact on society and the environment.

Course Requirements

Subject fees:

Year 9 - $50 to cover materials
Year 10 - $50 to cover materials

Elective Course: Industrial Technology – Timber

Course Description

Students who select this course will begin graded projects to develop skills and knowledge in the use of materials, tools and techniques related to timber.

Main Topics Covered

The following areas of work will be covered in Years 9 and 10:

- Cabinet Work
- Wood Machining
- Construction Techniques
- Design
- Industry Links
- WH & S and Risk Management
- Workplace Communications

Skills Developed

Students will develop:

1. Knowledge of and competence in applying Occupational Health and Safety (OHS) risk management procedures and practices.
2. Knowledge, skills and an appreciation of quality in the design and production of practical projects.
3. Knowledge and understanding of the relationship between the properties and materials and their applications.
4. Skills in communicating ideas, processes and technical information with a range of audiences.
5. An appreciation of the relationship between technology, leisure and lifestyle activities and further learning.
6. The ability to critically evaluate manufactured products in order to become a discriminating consumer.
7. Knowledge and understanding of the role of traditional, current, new and emerging technologies in industry and their impact on society and the environment.

Course Requirements

Subject fees:

Year 9 - $50 to cover materials
Year 10 - $50 to cover materials

Elective Course: Information and Software Technology (IST)

Course Description

The aim of this course is to develop students' knowledge and understanding, confidence and creativity in analysing, designing, developing and evaluating information and software technology solutions. In our 21st century world, every job involves the use of technology and this course will provide students with broader experience in a large variety of software applications. All units of work examine the possible career opportunities presented, including graphic and website designing, movie editing, animation and special effects creators, computer programmers, mechatronics and robotic engineers. The effects of technology and social media on our health and wellbeing, and the social and ethical issues arising, are also discussed in this course. An in depth look at futuristic technologies has proven to be a favourite aspect of this course over the years, as exciting new inventions such as self-driving cars, virtual reality headsets, wearable technologies, drones and thought-controlled wheelchairs become reality.

There are no prerequisites for the study of IST in Year 9. It is an elective course that builds upon the knowledge, skills and experiences developed in the Year 7 and 8 Technology course. Core content is studied within the context of options delivered through projects, including:

- Digital Media – includes the creation of newsletters, graphics and movies
- Robotics and automated systems – using the new Lego EV3 robotics kits and Mindstorms software to program the robots
- Multimedia systems – understanding the 'tweening' process and creating animations using Adobe Flash software
- The Internet and Website development – understanding the internet and relevant social issues, use of Dreamweaver to create a professional website
- Database design – investigation of prepared databases and the development of databases, including scripting, buttons and multiple layouts
- Networking systems – examines our school network and components of networked computer systems

Students also have the opportunity to participate in various computer programming or design challenges. IST classes all enjoy being part of the 'Hour of Code' world-wide computer coding fun day. An excursion to the "Big Day In", which showcases a huge variety of exciting career paths in the IT industry, in Wollongong or Sydney, is offered each year.

Course Requirements

Subject fee:

Year 9 - $30 to cover materials
Year 10 - $30 to cover materials

Elective Course: Investigating the Past

Course Description

This course involves study over two years and focuses on topics negotiated with and chosen by students.

It is very much a "Hands On" course and in each unit you will be involved in various practical activities. E.g. Writing Hieroglyphs or Ancient Chinese;
making a mosaic; painting wall scenes; surfing the net; movie making; etc, etc, etc, the list goes on, and is only limited by the students' imaginations!

During Years 9 and 10, a number of day trips will be organised as part of the course. This may include – Kiama Local History Day, Australian Museum (Sydney), the Nicholson Ancient History Museum (Sydney University) as well as possible overnight trips to Canberra and Sydney.

Topics which MAY be Covered

- Myths, Monsters, Mummies & More: A look at the Ancient Civilisations of Greece & Egypt.
- Nuggets, Ned & New Chums: The Australian Gold Fields & Bushrangers.
- Royalty, Romance & Romeo: The England of Shakespeare & Elizabeth 1.
- Great Catastrophes & Disasters: Discover the events & failures which shaped History.
- Wagers of War: The Greatest & Worst Warriors of all times.
- Pirates, Patches & Parrots: The truth about those famous Buccaneers!
- Kill or Cure? Medicine through time.
- Mysteries and Conspiracies: eg Who Killed JFK/ Who was the real Jack the Ripper?

The possibilities, of course, are endless and will be determined by the students' interests!

Course Requirements

No subject fee

Elective Course: Italian

Course Description

This course will enable students to:

- Comprehend spoken and written Italian.
- Speak and write reasonably in Italian within a range of set topics, first at a simple level and later at increasingly complex levels.
- Communicate effectively with a speaker of Italian on set topics.
- Demonstrate knowledge of various aspects of life.

Students will be actively involved in their learning through role-plays, video, cooking, song, magazines and excursions.

Why Study Italian?

Italian is the most widely spoken and studied foreign language in Australia. Knowledge of Italian is important for people in business, the arts, technology and many professions. It is also useful for students planning careers in art history, music, linguistics, education and international relations. Italy is the fifth most informtionized country in the world. Italy is a world leader in machine tool manufacturing, with advanced technologies in robotics, electromechanical machinery, shipbuilding, space engineering, construction machinery, and transportation equipment.

Italy is a world leader in:-

- The culinary arts
- Interior design
- Fashion Graphic design
- Furniture design

Main Topics Covered

- Personal Identification
- the Classroom
- Social Interaction
- Getting Around
- Shopping
- Services
- Eating and Drinking

- Leisure
- Holidays
- Sport
- Celebrating
- Daily Activities
- Physical Condition
- Home Environment and Weather

Course Requirements

You may choose Italian without having studied it in Years 7 and 8.

Subject fee:

Year 9 - $10
Year 10 - $10

Elective Course: Marine and Aquaculture Technology

Course Description

The study of Marine and Aquaculture Technology provides an opportunity for the future custodians of this environment to study it and to appreciate its value. It gives them the opportunity to develop the necessary knowledge and skills to use and protect its unique ecosystems, and at the same time communicate their appreciation to the community. It provides an opportunity to instil in students an acceptable ethical code towards the use of the marine environment, increasingly demanded by the community and governments.

Fees: $20 per year. *This course could include additional costs such as boat licensing fees, excursion costs etc.*

Main Topics Covered

In this 200-hour course, students complete Core 1, Core 2 and option modules (15 hours each) to make up the 200 hours over two years. Core 1 is to be studied at the beginning of year 9 and Core 2 is to be studied at the beginning of the year 10.

Core 1 (Year 9) Introduction to Marine and Aquaculture Technology (25 indicative hours)	**Core 2** (Year 10) Skills Management and Employment (10 indicative hours)
• Topics: water safety, first aid, maintaining marine equipment, the marine environment. ***Please note:** part of this core involves swimming*	• Topics: water safety re-accreditation, general first aid, management and employment. ***Please note:** part of this core involves swimming*
5 Options (75 indicative hours)	**6 Options** (90 indicative hours)

Optional Focus Areas (and topics)

- **Biology** (Water birds, mangroves, microscopic aquatic organisms, marine plants, marine mammals, dangerous marine creatures)
- **Ecology** (The oceans, rock platforms, estuaries, living together in the sea, marine pests and threats, temperate marine ecosystems, Antarctica, the Abyss)
- **Leisure** (water craft design, snorkelling, fishing, manufacturing fishing equipment, boat building, sailing)
- **Aquiculture** (aquarium design and maintenance, underwater farming, aquiculture systems, economics, growing stockfeed, biology of crayfish, growing crustaceans, fish biology, managing fish production, managing water quality, pests and diseases)
- **Employment** (small motorboats, advanced motor-boating, local fishing industries, food from the Sea, maritime industries and employment, tourism)
- **Management** (Coastal management, tides and currents, marine and civil engineering, saving water environments, recreational and community groups
- **General Interest** (shipwrecks and salvage, basic navigation, marine disasters, personal interest project, local area study)

Course Requirements

Subject fee:
Year 9 - $20 to cover materials
Year 10 - $20 to cover materials

Elective Course: Music

Course Description

Music is being offered as an elective from Year 9 onwards for students who want to extend their musical skills. In this subject, students participate in activities and tasks associated with performance, composition, listening and theory. If you are interested in learning to play a musical instrument, developing your singing voice, or even learning to write your own music, then this is the course for you.

Students are able to choose from a range of instruments on which to focus their learning for the elective course. These include electric guitar, acoustic guitar, keyboard, bass guitar, drums and vocals.

Main Topics Covered

One of the aims of this course is to expose students to a variety of musical styles. Therefore, a range of topics are studied, including:

- Rock and Pop
- Small Ensembles
- Music for Film and Television
- Australian Music
- Jazz
- The Baroque Period
- Music of Other Cultures
- Music and Technology

A part of this study may include excursions to live performances and musical productions.

Subject fee:

Year 9 - $10 to cover materials
Year 10 - $10 to cover materials

Elective Course: Photographic and Digital Media

Course Description

Students today have greater access to photographic technologies than ever before and this course aims to provide students with the knowledge and essential skills required to take and present successful, creative images. They will also learn how to enhance their work using digital technologies. Students will learn how use both manual SLR cameras, digital cameras and other computer hardware. They will work in a traditional, 'wet' photography darkroom using film to develop and enlarge their own prints and will also digitally manipulate and enhance digital images captured on a variety of devices using the industry standard program, Photoshop.

Time based works such as animations, stop motion videos and movie making also form part of this course. A study of famous photographers and the history of photography complements and informs class practical work.

Participation in various competitions and excursions to visit exhibitions and photo shoot sites such as Shellharbour harbour and rock platform, Lake Illawarra foreshore, Cockatoo Island (Sydney) and Luna Park form a vital part of this course.

Students do not need their own cameras to complete this course.

This course is suited to students who:
- Enjoy making artworks
- Have an interest in Photography and its creative potential
- Are willing to persevere to achieve the best possible results
- Enjoy completing tasks that require accuracy and attention to detail
- Are responsible and self-disciplined when using expensive equipment.

Main Topics Covered

In Year 9:
- Making a pinhole camera and exploring non-camera techniques in the darkroom
- The history of Photography and artist photographers
- Learning how to use a manual SLR camera and film to take photographs
- Learning and practising the traditions and conventions required to take successful photographs.
- Learning how to process a black and white film and make enlargements using negatives
- Learning "Photoshop" fundamentals and how photographic images may be enhanced
- 'In school Photographer' experience – working as 'official school photographer' at events such as the athletics carnival, talent quest, Rose assembly etc.

In Year 10:
- Consolidation and further development of the basic skills learned in Year 9 via self-determined projects
- Learning how to use a photographic studio including studio lighting
- Using digital SLR cameras and Photoshop to create photographic artworks
- Making photographic artworks that employ codes, signs and symbols to communicate meaning
- Investigating themes and genres to develop a portfolio of photographic work
- Critically and historically interpreting Photographic and Digital Media artworks

Course Requirements

Subject fee:

Year 9 - $50 to cover materials
Year 10 - $50 to cover materials

Elective Course: Physical Activity and Sports Studies

Content Endorsed Course

Course Description

Physical Activity and Sports Studies provides the opportunity for interested and talented students to extend their experience and abilities in school sport, recreation and leadership activities. Students will undertake an in-depth study of both practical and theoretical aspects of a variety of activities.

Students will extend their abilities past the core level of Physical Education, and to enjoy and experience varied leisure time activities and to acquire some competence in the coaching, umpiring and administration of such activities.

Modules Covered

- Body Systems and energy for Physical Activity
- Australia's Sporting Identity
- Physical Activity for Health
- Physical Fitness
- Fundamentals of Movement Skill Development
- Promoting Active Lifestyles and Swimming
- Coaching
- Event management, Athletic Carnival organisation.
- Lifestyle, Leisure and Recreation

Course Requirements

No subject fee (A cost will be involved in attending outside activities. This will involve private transport and various activity costs. This activity cost will be at least $7 per double period.)

Students are to participate fully in School Sport, as well as attending all School Sport Carnivals as competitors as well as affiliating in some capacity. Correct Physical Education attire is required for practical lessons. All required safety equipment is to be worn where appropriate.

Elective Course: Visual Arts

Course Description

This course is designed to give all students the opportunity to explore artmaking in new and exciting ways. Students explore a broad range of artmaking experiences using many different media. They will also investigate the significance of artists, the world in which they live, the artworks they make and the audiences who view them.

Visual Arts may also be pursued as an academic course of study in Years 11 & 12.

This investigation, along with participation in specialty workshops conducted by practising artists, expands and enhances each student's personal artmaking. Creativity, personal expression and the creation of unique, highly individual works underpins this course. The emphasis in Year 9 is on skill development and exposure to a wide range of artmaking experiences, while Year 10 provides the opportunity for specialisation and self-directed study.

Participation in various excursions to visit significant and topic related exhibitions form a vital part of this course. Exhibitions such as 'The Archibald Prize' and 'Artexpress' at the Art Gallery of NSW, 'The Biennale' on Cockatoo Island and at the Museum of Contemporary Art and 'Sculpture by the Sea' at Bondi are regularly visited. These excursions provide students with the opportunity to see and experience a wide range of artworks in different contexts.

The course is ideally suited to students who:
- enjoy making art using a range of different media & materials, eg, printmaking, ceramics, painting drawing, sculpture, photography & computer graphics
- wish to improve and extend their technical, artmaking skills
- have a diverse range of interests and enjoy expressing themselves visually
- wish to balance academic studies with creative pursuits.

You do not need to be planning a career in art to choose art as an elective. Interest, creativity and a desire to succeed are the only necessary requirements.

Main Topics Covered

This course covers a broad range of 2D, 3D and '4D' artmaking activities, across a broad range of student interest topics, that include:
- Drawing
- Painting
- Printmaking
- Ceramics
- Sculpture
- Mixed Media
- Photography
- Digital Media

Course Requirements

Subject fee:

Year 9 - $35 to cover materials
Year 10 - $35 to cover materials

Elective Course: Visual Design

Course Description

Much of the student's world and their sense of identity is derived from the designed objects, images, environments and virtual worlds that surround them. The Visual Design course explores this world and is comprised of the broad content areas **PRINT**, **OBJECT** and **SPACE-TIME.**

Topics to be studied from within these content areas is based on student interests, available resources and the requirement to provide students with a range of learning experiences.

The course is ideally suited to students who enjoy the challenge of producing designed works that require meticulous refinement of traditional and contemporary artmaking skills. Students should have an eye for detail and an interest in drawing, design, digital media and creative thinking. They are exposed to a wide range of design and artmaking experiences from a range of historical and cultural contexts. *These experiences are determined by student interest and staff expertise.* Design skills are developed through structured programs that require creativity and the development of technical skills.

In contrast to the Visual Arts elective, Visual Design focuses more on the application of design and artmaking skills to create functional objects or making art for a specific design brief.

Year 9 focuses on the development of technical skills and design elements and principles. Via more personalised programs of work, Year 10 focuses on the extension of skills and an emphasis on the creation of unique, original works that reflect personalities and interests.

Students keep a Visual Journal to document their artmaking and historical, cultural and critical studies of artists and designers. Completed tasks build a portfolio of artworks that can be used as a resource for those wishing to apply for future TAFE or University study.

Participation in various competitions and excursions to visit related exhibitions or workshops also form a vital part of this course.

Topics available for study include

The PRINT content area provides the opportunity to study:
- Street art, skateboard/surfboard design
- Illustration & book making. Paper making
- Cartooning & animation
- Layout, lettering & texts - typography
- Commercial art & advertising, including posters, postcards & packaging, corporate identity
- The development of digital images for a range of design purposes

The OBJECT content area provides the opportunity to study:
- Ceramics – both functional & decorative, hand built and wheel thrown forms.
- Mosaics – personal and large scale. Mosaic mirrors, small objects and murals
- designed containers, boxes, giftware, home decorator objects
- picture/photo frames – recycling found objects, ceramic, papier mache, painted etc.
- theatrical applications – costume, set production and make-up design
- Textile and fabric design and construction, weaving, felting, silkscreen printing etc .
- Fashion & shoe design
- Jewellery

The SPACE-TIME content area provides the opportunity to study:
- Video & 'iMovie' productions, including digital stop motion animations.
- Virtual worlds, Web design
- Architectural and environmental design – interior and exterior spaces
- Site specific works, especially within the school environment

Course Requirements

Subject fee:
Year 9 - $35 to cover materials
Year 10 - $35 to cover materials