Bundarra Central School: Unit of work Technology (Mandatory) Year 7

Unit description: Footwear is a product in high consumer demand. Traditionally Europeans have worn protection on their feet while other cultures may not. People in Australia wear a wide variety of foot protection for a variety of reasons. There are times when we would feel completely lost without our shoes. This unit of work involves students designing, producing and evaluating their own pair of shoes made from waste or recycled materials. The shoes will be tested by asking the students to walk 1 km and run 100 metres while wearing them.	**Focus outcomes for reporting purposes:** A student: 4.2.1 generates and communicates creative design ideas and solutions 4.3.1 applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects 4.5.1 applies management processes to successfully complete design projects
Area of study: Products **Design specialisation:** Accessories design **Technologies:** Mixed materials technologies **Design project**: Design and make a means of suitable and/or disposable footwear from waste and/ or recycled materials that you can walk 1 km and run 100 metres wearing.	
Length of unit: 10 weeks	
Resources: Glover,N. *Design and Technology* Fritz, A. *Design Works-Design and Technology 7-10* Magazines Catalogues Video *Boots, Boots, Boots* Video Educational Australia, Pty Ltd, 111 Mitchell Street, Bendigo, Victoria 3550. Shoe outlets.	**Useful websites:** Myfuture: Australia's career information service http://www.myfuture.edu.au La Trobe University- Faculty of health sciences- Department of podiatry http://www.latrobe.edu.au/podiatry/footwearmanufacture.html Paynesville Historical Society http://www.paynesvillearea.com/community/histsociety/shoes070401.html Shoe Making http://www.podiatry.curtin.edu.au/shoo.html The story of Shoe Making http://www.stories.historians.co.uk/shoe.html Shoe Making Materials http://www.footwear-findings.co.uk/shoemaking.htm Women's History Then & Now- Footwear http://www.cwrl.utexas.edu/~ulrich/femhist/footwear.shtml

Outcome	Students learn about	Students learn to	Integrated learning experiences	Evidence of learning/assessment strategies
4.1.1	• needs and opportunities in the areas of study	• identify needs and opportunities that require solutions in the areas of study	**Analysis of need** • Introduce overview of design task with a collection of images of shoes to stimulate students. • Determine students' prior knowledge of footwear. Brainstorm: – Types of shoes. – Why do people wear shoes? (Safety, aesthetic reasons, medical reasons, entertainment (ballet shoes)). • Students make a list of the requirements /needs of shoes and place in design folio.	
4.1.2	• factors affecting design – function – aesthetics – human form – ethical – environmental – legislation including OHS – cost – socio-cultural – resource availability – physical and material properties – safety	• describe the factors affecting design in the development of each design project • evaluate the appropriateness of specific design solutions for different cultural groups including Aboriginal and Torres Strait Islanders and other Indigenous peoples	**Criteria for success** *Factors affecting design* • Write the following headings on butcher's paper: functional, aesthetics, environmental and human and place paper around the room. Each student is to add one point to the paper headings regarding factors affecting design of shoes e.g. – Functional factors- Work boots, Evening shoes, Sport shoes, Slippers, Ballet/Dancing shoes – Aesthetics- shape, texture, colour – Environmental issues- shoes made from synthetic materials/ Vs natural products such as leather. Recycling of materials. – Human form- Shape of the foot, medical conditions such as flat feet, fallen arches, scoliosis etc • Guest speaker such as podiatrist to speak about foot shape and various conditions that affect shoe design. • Class view video *Boots, Boots, Boots*- students to complete a worksheet based on the information from the video- Worksheet may include a cloze passage, true/ false questions, open ended	

			questions. • Discuss footwear as “fashion” and what makes the difference between a pair of shoes that is wanted by everyone and a pair left for the end of year sale. • Class debate- “Brand names make the shoes” • Class discussion of the factors that would specifically affect the design of disposable shoes? Fashion or functional? • Students to prepare a list of factors that will affect the design for their shoes and document in their design folio. Or students could do a PMI exercise (plus, minus, interest on shoes)	Discussion and class debate demonstrates students understanding of the factors that affect footwear design.
4.1.3	• relationship of design to the areas of study of Built Environments, Products, and Information and Communications • different design specialisations • work and training opportunities for people who engage in design and technology in each area of study	• identify relationships of design to each area of study • describe the nature of each of the areas of study of Built Environments, Products, and Information and Communications • identify a range of design specialisations relevant to each area of study • explore work and training opportunities for people who engage in design and technology relevant to each area of study	• Students to visit www.myfuture.edu.au and investigate the jobs available in the shoe making industry. Jobs may include shoe designer, shoe repairer, shoe maker etc. Relevant search words may include footwear industry or textile, clothing and footwear industry. Create a mind map using ICT skills of careers in the industry which can be displayed in the classroom. • In groups students research shoe makers such as Peter Sheppard (footrest shoes), Blundstones (Australian work boots) and RM Williams boots etc. • Careers advisor to give a talk to the class about careers in this field and community contacts.	
4.2.1 4.2.2	• communication methods suitable for specific audiences including – users and clients – technical experts – peers • communication methods	• communicate information appropriate to specified audiences	**Researching** • Students to use the Internet and books to research European footwear through the years and reasons for changes in style. Students write a report on three different shoe styles they have found. Teacher to provide model of report text type. The model report could be based on what are shoes,	• Reports submitted by students are to be assessed in terms of information presented and written communication skills. Assess-(sentence structure, report format, grammar,

	including – drawings, sketches and models – written reports – oral presentations – digital presentations • research methods – needs analysis – surveys and interviews – searching techniques including use of the Internet.	• Identify, interpret and evaluate data from a variety of sources • Use the Internet when researching	types etc as a review of previous work. • In groups students are provided with stimulus material about historical, environmental and social influences of footwear in a particular cultural group. (E.g. Clogs, Asian footwear, feet binding, sports shoes etc). Each group is to discuss: – the type of footwear worn – Why this particular group wear such footwear. Each group is then to prepare a five minute presentation for the class on their findings	content, use of technical language, audience appropriateness) • Group assessment of oral presentation skills. Assess-(eye contact, timing, clarity, knowledge, pace)
4.2.1	• communication methods including – drawings, sketches and models – written reports – oral presentations – digital presentations	• use a variety of methods to generate creative design ideas for each design project	• Teacher to provide information on sketching- what is it, types of sketches, purpose of a sketch • Students to produce an annotated sketch of their favourite pair of shoes. The sketch can be produced by hand or using ICT skills and a digital camera. The sketch is to be placed in their design folio.	• Assess the quality of the sketch in terms of clarity, appropriateness to audience and meets criteria outlined by class teacher.
4.3.1 4.2.2	**Materials** • characteristics and properties of a wide range of materials such as – metals – polymers – textiles – timber • the use of materials in traditional and non-traditional ways • Experimentation and testing of design ideas	• experiment with combinations of a wide range of materials considering their characteristics and properties • identify how materials have been used in innovative and non-traditional ways • Apply the results of experimentation to designing and making when developing each design project	• Students to bring to class their favourite pair of shoes. The students will explain to the class what makes these shoes their favourite. • Class discussion: What materials are used in the shoes brought to school? • Teacher to prepare worksheets on types of materials, characteristics and properties used for making shoes- leather, vinyl, foam, plastic, wood, metals, rubber etc. • Discuss suitability of a range of materials for construction of shoes considering such aspects as weight, colour, durability and hygiene. • Experiment with a variety of materials to determine their suitability for shoes and classify them under headings such as outsole, insole, upper, tongue, collar, heel etc.	

			• In groups- Stimulate students with images of footwear from performances. Students then determine the materials used. Would they have used that material in that way? How successful is the result? Do you think the material has been used innovatively? Discuss findings with the class. • Class discussion about disposable materials such as those for surgical shoes etc. – What makes a material suitable for disposable shoes? – Is this material environmentally friendly? – OHS issues • Gather materials suitable for design project justify choices and record in design folio.	• Assess the student's collection and justification of suitable materials for the production of their shoes.
4.3.1	**Tools** • specific tools related to materials appropriate to a design project • the function and safe use of a range of contemporary tools used for – measuring – marking out – cutting – construction	• explore ways that tools can be safely used to achieve new results • select and safely use tools and equipment for a design project	Students: • provided with cardboard and asked to make a model to demonstrate foot movement. (Instructions were provided in the video previously watched) – Why did we use cardboard to produce the model? – Could we have used alternative materials to achieve the same result? • investigate the tools available for them to complete their design project e.g. cutting knives, scissors, needles, hammers, hole punch, large stapler. • compare tools used in the shoe making industry- Groover, Creaser, Skive Eze, Eyelets, Pliers, Overstitch wheel etc. with tools available at school. • prepare a report indicating tools available, the purpose of the tool and the safety considerations when using these tools.	• Informal assessment teacher able to assess students' communication skills in listening to instructions presented in the video • Assess the report on the tools to be used in the project and their safety considerations. Assess- safety issues are correct, tools are available, tools will perform task.
	Techniques • traditional and non-traditional techniques used for – cutting	• experiment with traditional and non-traditional techniques	• Students experiment with joining methods and construction techniques in a safe and responsible manner.	

	– shaping a variety of materials – joining different materials – finishing	• select and use traditional and non-traditional techniques for the identified needs and opportunities of a design project	• Class discuss Occupational Health & Safety issues relating to materials.	
4.3.2	• the safe and responsible use of materials, tools, and techniques in each design project.	• use tools, materials and techniques in a responsible and safe manner in each design project		
4.2.1	• methods used to generate creative design ideas including – mind mapping – brain storming – sketching and drawing – modelling – experimenting and testing	• use a variety of methods to generate creative design ideas for each design project	**Generating ideas** Students: • walk with socks or bare feet over a variety of surfaces and record the different sensation/feelings. Prepare a personal journal entry. • create a spreadsheet graph using catalogues, magazines and the Internet to compare the cost of commercially available shoes for different purposes. • visit shoe outlets in town to look at the variety of types of shoes available as well as materials used, colours, children's shoe styles, shoes for men and women.	• Informally assess student's discussion of their journal entry. • Students to print graphs and display in the classroom.
4.5.1	• resource availability including – time – money – materials, tools and techniques – human resources including skills and expertise – other resources	• Identify resource availability and apply realistic limitations to each design project.	• Class establish criteria for footwear to meet design task such as cost, time constraints, human resources, skills level, tools and materials and ethical and environmental issues. • Students to develop a list of constraints after group discussion and place list in their design folio.	
4.6.2	• ethical and responsible design • environmental and sustainablitiy considerations	• Identify ethical, social, and environmental and sustainability considerations relevant to each design project • Be responsible and ethical in the decisions made in the development and production		

		of each design project.		
4.2.1	• using ICTs to plan, develop and document design projects • use of design folio to record and reflect on design ideas and decisions • methods used to generate creative design ideas including – mind mapping – brain storming – sketching and drawing – modelling – experimenting and testing	• use word processing features including page numbering and page breaks, find and replace, word count, spell check and thesaurus, columns and sections, inserting text/objects/images • use ICTs to communicate information including saving a document in various file types and storage locations from within the application • use a design folio to record and reflect on design ideas and decisions • sketch, draw and model to aid design development • manipulate images with tools such as editing, resizing, grouping, aligning and positioning • use a variety of methods to generate creative design ideas for each design project	• Teacher to explain foot anatomy and students to label parts of the shoe such as last, upper, outsole, insole, heel, tongue etc. Students: • make a last of the upper and lower parts of their foot using doctors' plaster. • take digital camera images of the last of their foot and insert into word processing document, annotate pictures, save and print. Include a copy in design folio. • prepare three design sketches using a suitable software package, save, print and include in design folio. • prepare a written report identifying and justifying their final design.	• Assess students design ideas and final design they wish to produce in terms of meeting design criteria
4.5.1	• Resource availability including – time – money – materials, tools and techniques – human resources including skills and expertise – other resources	• Identify resource availability and apply realistic limitations to each design project.	**Managing project** • Teacher to outline basic project planning tools available such as Gantt charts, time lines, budgets, risk assessment etc. • Students then prepare a management report considering issues for the management of their project. They must include costs, resources to be used, time management issues, safety issues, tools, materials and techniques they will use for their selected design etc. This is to be placed in design folio.	• Assess the management plan for the selected design. – Evidence- meets constraints outlined earlier of time, money, resources, tools, materials and skills

	• management techniques including action, time and budget planning			
4.5.2	• suitable materials, tools and techniques for design projects • skill development and refinement • construction steps that contribute to a quality solution • relationship of quality solutions to needs and opportunities and the criteria for success for each design project	• identify suitable materials, tools and techniques for each design project • practice and refine skills need for design projects • apply a design process that responds to needs and opportunities for each design project. • produce solutions reflecting quality standards appropriate to each design project	**Produce** • Teacher to show students a pattern and explain techniques for creating a two dimensional pattern from a three dimensional object. • Discuss safe work practices that students have identified in their management reports before allowing students to commence construction. • Students to draft a pattern for selected design using the plaster last created previously. • Students work on the production of final design. Students may undertake modifications of their design as a result of construction and testing. All modifications to the design must be documented using a word processing application and included in the design folio.	• Assess students use of materials, tools, techniques while producing quality solutions • Assess final design in terms of quality, application of management principles and meeting established criteria.
4.2.2	• experimentation and testing of design ideas	• apply the results of experimentation to designing and making when developing each design project.		
4.3.1	• the function and safe use of a range of contemporary tools used for – measuring – marking out – cutting – construction • traditional and non-traditional techniques used for – cutting – shaping a variety of materials – joining different materials – finishing	• select and safely use tools and equipment for a design project • select and use traditional and non-traditional techniques for the identified needs and opportunities of a design project		
4.3.2	• the safe and responsible use of materials, tools and techniques in each design	• Use tools, materials and techniques in a responsible		

4.6.1	project • developing criteria for success as a tool for assessing design development and production.	and safe manner in each design project. • Apply criteria for success in decision making during the development of each design project.		
4.2.1 4.6.1	• methods used to generate creative design ideas including – mind mapping – brain storming – sketching and drawing – modelling – experimenting and testing • final evaluation considering – design process used – design solutions – reflection on learning	• use a variety of methods to generate creative design ideas for each design project • evaluate prior to, during and at completion of each design solution.	**Evaluate** • Students make a visual evaluation of peers and own footwear. • Class discuss which pair/pairs of shoes meet the design task best and why? • Students test the footwear using specified testing criteria. • Students evaluate footwear after testing and compare this to the visual evaluation. • Complete an evaluation checklist and note improvements for future production. The evaluation is to be placed in the design folio.	• Design folio documents application of the design process and evidence of evaluation.

Life Skills Outcomes

For students with special education needs the focus outcomes, learn about and learn to will be addressed as indicated:

L.S 2.1 gathers and uses information in the context of producing design projects (learn to access sources of information which could include electronic media, people, newspaper, library, Internet and CD-ROM)

LS 5.1 participates in producing design projects (learn about managing resources and time to complete a design project and learn to participate in designing and producing a product)

LS3.1 recognises safe and unsafe conditions when undertaking design projects (learn about factors that influence the safety conditions in the classroom, in specialist classrooms and in external areas)

Extension

4.2.1 Students design a brochure, flier, *PowerPoint* presentation and/or video to advertise and market their footwear.