

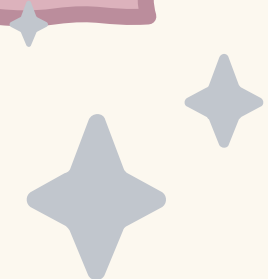


Skills, Knowledge and
evaluation

PORTFOLIO

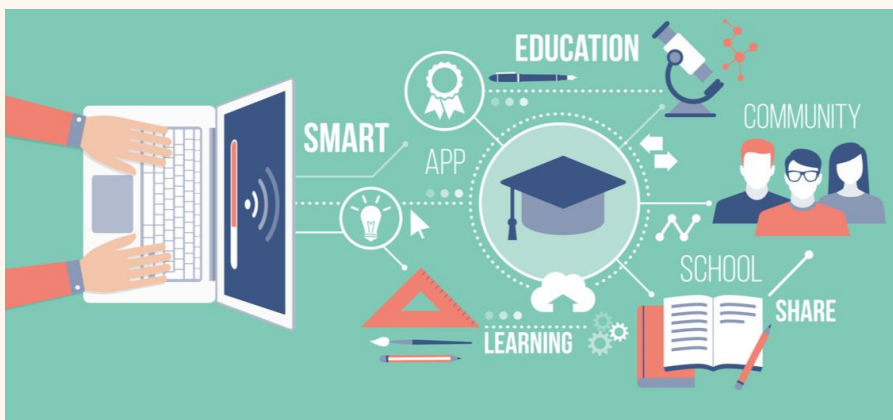
FOR Brooke Vozzo

EDET 299 (A1) – SN: S00320158



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Year 7/8 mandatory technology – units

01



Agriculture/Food
technology

02



Digital Technology

03



Engineering systems

04



Material technologies

Textiles and industrial
(Timber and Metal working)

Agriculture/Food technology



Knowledge

A stage 4 Food technologies teacher is required to be equip with the knowledge in the area of food production, nutrition as well as the practical skills for developing complex food solutions. Simultaneously, Agriculture/food tech educators must be knowledgeable of the food development industry and distribution of food around Australia and the world, as well as its methods of sustainability and waste management. Teachers must understand how First Nations peoples manages the land and how they effectively sustained food from the environment around them (e.g., bush tucker unit). Teachers must be able to identity and understand fibre and protein food compositions and what makes nutrition so important in different aspects of the life cycle. Teaching this subject also requires educators to have knowledge of basic cooking utensils , equipment and how to effectively use them in a safe manner, as well as food storage and safely.



Skills

- I can design, communicate and evaluate innovative ideas and creative solutions to authentic problems or opportunities
- I can select and safely appl a broad range of tools, materials and processes in the production of quality projects
- I can explain how people in food technology related professions contribute to society now and into the future



Self-audit



Skills:

- Must develop my understanding in investigates how food and fibre are produced in managed environments

Knowledge:

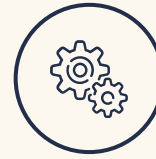
As a preservice teacher, I need to develop my understanding as well as equip myself with the knowledge of 7/8 mandatory technology. Knowledge that I need to develop is understanding and identifying fibre and protein compositions and refining the fine details about nutrition and its impact your body. There is also some science aspects of this subject that I need to consider when further developing my teaching toolbox. As I completed food technology from Year 7-12, I feel confident in teaching this subject but will need some refreshers of some content that is taught throughout my degree as a TAS educator.

Digital technologies



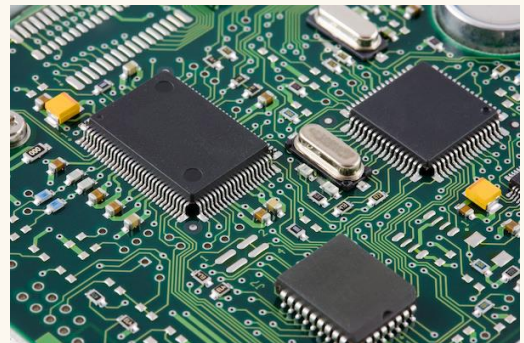
Knowledge

As a digital technology's teacher, I need to be knowledgeable about information systems, as well as recognising that this industry is constantly changing and adapting to this within my teaching. Digital tech teachers need to know how important digital tech is for our future and the positives and negatives of it in our society, evaluating its constraints, possibilities, its impact on the environment and community. Teachers must be able to evaluate sustainability of digital technology whether that be through high powered systems, energy conserving technology for travelling or small light systems for health monitoring. Digital technology teachers also need to effectively assist students in developing creative and unique ideas and executing them effectively.



Skills

- Designs, communicates and evaluates innovative ideas and creative solutions to authentic problems or opportunities
- I can plan and manage the production of designed solutions
- I can explain how people in technology related professions contribute to society now and into the future



Self-audit



Skills:

- Must develop my skills in designing algorithms for digital solutions and implements them in a general-purpose programming language.
- Must learn to explain how data is represented in digital systems and transmitted in networks.

Knowledge:

To be an effective digital technology educator, you need to be highly knowledgeable on programming and coding techniques. I have very minimal experience in this department and feel this unit is probably one of my biggest weaknesses. As this is a topic that is so prevalent in our society and its constantly changing nature, I need to ensure that I become adaptable and more confident in this content ensuring I work hard on extending my skills. Doing this well ensure I am encouraging students to reach the higher order of Blooms Taxonomy. This subject really interests and excites me, so putting in the extra time and effort into becoming more familiar with this unit will be a priority as well as rewarding for my self development.

Engineering systems



Knowledge

To teach the engineering systems unit I must be able to explore and explain how technologies have evolved through time, locally, regionally and globally and how these factors subsequently effort design development. TAS teachers must have knowledge and encouraging students to investigate How Aboriginal and Torres Strait islander people use engineering solutions to assist them in duty and community, for example, tools, transport and structures. Teaches must also investigate needs or opportunities for designing an engineered system while also investigating and selecting from a range of materials, components, tools, equipment and processes. I will also have the knowledge for an engineering professional and their impact on the environment and society



Skills

- I can design, communicate and evaluates innovative ideas and creative solutions to authentic problems or opportunities
- I can plan and manage the production of designed solutions
- I can select and safely applies a broad range of tools, materials and processes in the production of quality projects
- I can explain how people in technology related professions contribute to society now and into the future

Self audit



Skills:

- Explain how force, motion and energy are used in engineered systems

Knowledge:

So far in this area, I don't have much practice in engineering systems as it has only been introduced to me during this semester at uni. However, I know the basic knowledge of this unit but will need to continue to adapt these skills through practice. I do believe I will be more confident once the TECH 211 unit is completed and am excited to work externally in enhancing my skills

Material Technologies

Knowledge



When being a Material Technologies educator I need to focus on the “application of specialist skills and techniques to a broad range of traditional, contemporary and advancing materials”. Material technology has multiple elements such as TEXTILES, INDUSTRIAL (timber and metal) and CAD (computer aided design). This means I must be knowable on all these aspects. Like engineering systems, I need to be able to investigate and encourage students to explore through my teaching the resources and professionals in relation to technology and their impact on the environment and society. I will need to be able to investigate a current and innovate product produced by an Aboriginal and Torres Strait Islander designer and how it is influenced by their cultural identity. When analysing and designing products, I must have the knowledge to investigate products and services in relation to technology and consider its ethical and social impacts. As an effective TAS teacher I must be able to assist students in evaluating and developing designs, ensuring they consider all factors, e.g. ethical, environmental, cultural, economical, safety and technical. I will also need to be knowledgeable on the properties and performance on materials and their best end uses



Skills



- Designs, communicates and evaluates innovative ideas and creative solutions to authentic problems or opportunities
- I can plan and manage the production of designed solutions
- I can select and safely apply a broad range of tools, materials and processes in the production of quality projects
- I can investigate how the characteristics and properties of tools, materials and processes affect their use in designed solutions
- I can explain how people in technology related professions contribute to society now and into the future

Self-audit



For the textile's element of this unit, I am extremely comfortable in providing the knowledge for stage 4 students as I have been enrolled in textiles and design from year 7-12. I however am always developing these skills and knowledge and actively strive to become better within the content in this unit. Similarly, I am quite confident in the industrial unit with history in completing lots of projects in this area. However, in the CAD unit, I will need to enhance and practice in these skills to ensure I can teach students to the best of my ability. I am in the process of researching and completing external “master classes” in some CAD software such as illustrator, and am constantly practicing my skills on 3D modelling software to effectively be able to assist my students.



IMPORTANCE OF TAS IN EDUCATION



INNOVATION AND CREATIVITY

Students have the opportunity to explore their creativity and develop innovative ideas. They can design and create products, systems, or solutions that address specific needs or problems while simultaneously showcasing their individuality through their work.



PERSONAL GROWTH

Technology subjects can boost students' self-confidence and sense of accomplishment as they see tangible results from their efforts. Mastering practical skills can enhance their self-esteem and overall personal development.



REAL WORLD RELEVENCE

Technology education emphasis practical skills and knowledge that are directly applicable to real-life situations and various industries. This helps students bridge the gap between theoretical learning and practical application, making their education more relevant and valuable.



CRITICAL THINKING AND PROBLEM SOLVING

TAS education often requires students to analyse complex problems and come up with creative solutions. This fosters critical thinking skills, as students learn to apply their knowledge to solve real-world challenges



TECHNOLOGICAL LITERACY

Equips students with the skills and knowledge to navigate and utilise various technologies effectively



HANDS ON LEARNING

Hands-on learning experiences, engage students in practical activities that enhance their understanding of concepts and improve their skills.

Roles and Responsibilities of an effective TAS teacher

TAS TEACHING PROGRESS

01

Explain

Explain instructions and content clearly

02

Observe

Observe students understanding through practical and written work

03

Assess

Assess students work and critically evaluate their ideas and knowledge

04

Reflect

Reflect on students understanding both individuality and with the student, while providing assistance and suggestions

Factors that make a good TAS teacher

- | | |
|---|---|
| <input type="radio"/> Critical thinking | Technology commonly involves problem solving and critical reflection. Teachers must be able to guide students in acknowledging and processing technical issues |
| <input type="radio"/> Communication skills | Clear communication is crucial when explaining technical concepts and ideas, so student can execute instructions safely and effectively |
| <input type="radio"/> Positive affirmations | Technology can be a very difficult concept to understand as it is structured differently to other subjects. Ensuring positive reinforcement will motivate students who are struggling or reassure them they can adapt to this new way of learning |
| <input type="radio"/> Adaptability | Technology is constantly changing with new innovations changing around us. Educators must allow themselves to adapt to new ideas to ensure they are effectively teaching updated concepts |
| <input type="radio"/> Subject knowledge | Technology is a large spectrum, and ensuring you are knowledgeable and confident in teaching all layers of this subject will ensure students understand the unit effectively. |
| <input type="radio"/> Organisation | Technology, especially in practical elements can become very chaotic if instructions and work isn't organised, ensuring teachers keep their lessons organised will allow students to stay engaged in content and have a better understanding. |
| <input type="radio"/> Creativity | TAS is a very creative unit where students explore their unique ideas. Teachers must be creative to interpret and understand concepts while also providing effective suggestions |

Ensuring a safe environment for diverse learners

DIVERSE LEARNERS	How we can create a safe and supporting environment for students:
EALD	<ul style="list-style-type: none"> - Visual and bilingual aids supports/ aids. E.g. demonstrational videos for food technology and textiles classes - Allow for extra preparation for both yourself and students before and after lesson - Kinaesthetic/Tactiles learning. Provide physical resources for students to interpret information easier - Allow time consideration
LIFE SKILLS	<ul style="list-style-type: none"> - Allow additional time - Use reading material and varied levels - Encourage group discussion about the topic so students are always required to read and interpret large amounts of writing - Break tasks into small sections, for slower class sequence. - Teacher aided support during activities - Very clear explicit instructions - Provide modelling to support student - Ensure visual aids are available for different learning styles - Provide students with a “study buddy”. Students can simultaneously teach one another while also interpreting information differently to assist each other.
HIGH ACHIEVERS	<ul style="list-style-type: none"> - Encouraging students to advance their ideas, and doing this by providing them with additional resources and assistance to prompt them to test their abilities - Provide students with open ended questions to allow them to critical analyse - Implement complex issues and ideas into their work to allow them to evaluate and research ideas further.
ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLES	<ul style="list-style-type: none"> - Integrate “8 ways Aboriginal pedagogy strategies” to engage students effectively. - Provide resources in relation to Aboriginal and Torres Strait Islander Culture and cultural perspectives - Welcome to Country to begin class to encourage not only Aboriginal and Torres Strait Islander students to feel comfortable but also educating other students within the classroom. - Integrate Yarning circles into class to reflect and evaluate in a more comfortable/ less formal manner.



TAS Teaching Pedagogies

During my development process of becoming a TAS teacher, I must ensure I am able to constantly adapt to diverse learning and effectively incorporate a variety of different pedagogy to ensure all students have an even opportunities for growth within the classroom. Although I understand I am not restricted to only these, I have provided a few examples of pedagogies that will prominently be prevalent within my classroom as research shows they are most effective for encouraging students to think on the higher level of bloom's taxonomy and develop deeper understanding of content.

Project based learning

Project based learning or PBL is the foundation of design and technology education, where students slowly develop their ideas through research and evaluation to construct a project to a solution or a problem. PBL allows students to subsequently think in the higher order of learning on bloom taxonomy where they create, evaluate and analyse design and individually or collectively showcase their unique ideas as well as developed skills, encouraging them to think outside of the box.

Kinaesthetic learning

As a tactile learner myself, kinesthetic learning is very beneficial to TAS subjects, as it allows students to be immersed into the development experience and gather a deeper understanding of the knowledge they are being taught and why they are learning it. For example, in a textile's classroom, a student might be told the performance properties of a fibre, but having the experience to be able to touch and feel the textures of the fibre will deepen their understanding of how it works and why the fibre might be beneficial for an end use.

Modelling

In contrast to regular audible based learning subjects, TAS education encourages students to adapt and learn new life skills while creating unique and individualised projects. Having an organised and clear model of the expectation that are required of a project, ensure students feel supported when trying new techniques within workshops and other design focus areas.

✦ S.M.A.R.T goal planning and its benefit for educators



What is SMART Goal planning

Growth and especially adaptability as a TAS teacher is essential in ensuring you are educating students effectively and allowing them to explore their unique and complex ideas. SMART planning goals allows teachers to systematically schedule and critically evaluate what aspects of teaching they need to develop and provide a sequenced plan on how to complete this goal. This outlines what the goal is, how are you going to achieve the goal, how you can tell you have achieved the goal, why you are doing it in regard to your personal growth, students' outcomes and schools' priorities and giving yourself a time phase to hold accountability to compete the goal.

Why its beneficial

Particularly as pre-service teachers and further into our career, we need to acknowledge that we can't always be perfect. These SMART goals allow us to critically evaluate our teaching abilities and skills we need to develop as well as being an appropriate resource to provide student with achievable goals. SMART learning goals are independently set and are discussed and agreed upon to ensure they are achievable for the individual. They allow us to provide ourselves with reasonable boundaries why also pushing ourselves to achieve the best we can.

BLOOMS TAXONOMY

Blooms taxonomy is the fundamental backbone to providing students with meaningful and effective knowledge of content while encouraging individuals to critically evaluate and their creations and applying this knowledge in a beneficial way. Within my Smart learning in relation to my self audit, I must integrate how my self development learning goals will ultimately contribute towards benefiting students in thinking in the higher order rather than just displaying they have a lower "remembering" level of learning



SMART GOAL PLAN 1

Specific	Measurable	Achievable	Relevant	Time-Phased
Performance development goal to be achieved	Evidence that will be used to demonstrate progression and goal achievement:	What actions will I take to achieve the goal:	How does my goal connect to my professional growth, my schools' priorities and students' outcomes:	Timeframe in which the goal will be:
Develop and improve my knowledge and skills on CAD and 3D modelling techniques	-Being able to model and design complex ideas through 3D modelling and CAD software -Using these skills to effectively instruct students to display their design using CAD	-Complete external CAD development workshops and courses -Practice using software individually and develop new skills through self-exploration	Professional growth: -The incorporation of strong CAD software knowledge will ensure I am able to effectively support students in displaying their complex ideas and assist them in perfecting their designs. -Allows me to feel confident in what I'm teaching as I'm well equipped with resources and knowledge. School's priorities: Incorporating these new skills into the classroom will ensure students a meeting learning outcomes and standard 3 of the AITSL Student outcomes: -The incorporation of my updated skills allows student to feel better supported and more comfortable that they can be assisted to portraying their ideas and students can "create and apply" their knowledge like Blooms Taxonomy intends	End of term 1 (1 term/10-12 weeks)

Support that will be required from school to achieve goal:

- Potentially allocated time to complete development courses
- Additional resources from other educators so assist in self-exploration development
- Feedback and critical analyse from coworkers and faculty on how I can improve



SMART GOAL PLAN 2

Specific	Measurable	Achievable	Relevant	Time-Phased
Performance development goal to be achieved	Evidence that will be used to demonstrate progression and goal achievement:	What actions will I take to achieve the goal:	How does my goal connect to my professional growth, my schools' priorities and students' outcomes:	Timeframe in which the goal will be:
Retain my knowledge on digital systems and how to simultaneously use this to develop skills in robotics	-I am able to effectively and confidently clearly explain digital systems and showcase this knowledge through demonstration e.g. making robotic devices	-Find and research information through academic resources -Ask for further assistance from peers to help explain knowledge -Use online resources such as websites and videos to develop my understanding	Professional growth: Encourages me to be able to explore deeper into the complex nature of robotics and effectively be able to assist students when questions are asked about digital systems and the theory behind them. Schools' priorities: This development will allow me to display my connection to AITSL standards 2,3 and 6 while also creating a safe environment for students to ask complex questions. Students' outcomes: Implementing this SMART goal will allow Students to feel comfortable to completing tasks and feel adequately supported by me as an educator	End of term 3 (3 terms) – keep in mind I will be completed other SMART goals at the same time so this is why it is extended over 3 terms

Support that will be required from school to achieve goal:

- Potentially providing me with additional resources or assistance into what they used to effectively educate students of this unit



SMART GOAL PLAN 3

Specific	Measurable	Achievable	Relevant	Time-Phased
Performance development goal to be achieved	Evidence that will be used to demonstrate progression and goal achievement:	What actions will I take to achieve the goal:	How does my goal connect to my professional growth, my schools' priorities and students' outcomes:	Timeframe in which the goal will be:
Expanding my knowledge on Arduino boards systems and CAM Python coding technology, and learn to Integrate this into stage 4 mandatory technology	<ul style="list-style-type: none">-Effectively be able to demonstrate python coding systems alongside language to students in a clear and cohesive manner-Be able to display my knowledge though Arduino control systems that I have designed and executed	<ul style="list-style-type: none">-Individual practice of python coding software to expand my skills.-Ask tutors complex questions to adapt my prior knowledge-Use additional resources such as outsourced courses or online videos and website instructions	<p>Professional growth:</p> <ul style="list-style-type: none">-Further expanding my knowledge will allow me to develop more complex electromechanical systems and effectively be able to assist students in portraying their ideas <p>Schools' priorities:</p> <ul style="list-style-type: none">-This expansion of knowledge will ensure I "know the content and how to teach it" under standard 2 of AITSL teaching standards and be able to effectively assess student understanding. <p>Students' outcomes:</p> <ul style="list-style-type: none">-Will ensure students meet outcomes and content regarding producing and implementing as I will be able to confidently critic their work.	End of term 4 (4 terms) keep in mind I will be completing other SMART goals at the same time so this is why it is extended over 4 terms

Support that will be required from school to achieve goal:

- Providing pre-serve teacher (me) with additional assistance when requested and assessing if further improvement is needed
- Allows allocated time to complete self-development courses



SMART GOAL PLAN 4

Specific	Measurable	Achievable	Relevant	Time-Phased
Performance development goal to be achieved	Evidence that will be used to demonstrate progression and goal achievement:	What actions will I take to achieve the goal:	How does my goal connect to my professional growth, my schools' priorities and students' outcomes:	Timeframe in which the goal will be:
Develop a better understanding of Aboriginal and Torres Strait islanders Peoples engineering solutions and the theory behind them.	-Be able to explain the theory and science behind Aboriginal and Torres Strait Islander Peoples engineering solutions and effectively assess if my students have grasped on the complex content	-Find and research information through academic resources -Ask for further assistance from peers to help explain knowledge -Use online resources such as websites and videos to develop my understanding	Professional growth: This will not only assist me in teaching the content to students but also provide me the knowledge or Aboriginal and Torres Strait Islander culture and how I can further implement their culture and values into my teachings. Schools' priorities: This will ensure I am educating students on a unit in the cross-curriculum content as well the theory of engineering that is simultaneously surrounding us Students' outcomes: Students will be more Knowledgeable of Aboriginal Culture and the intricacy of not only their engineering systems but their culture and beliefs. Having this knowledge will allow me to support students into further evaluating and analysing engineering systems, (higher levels or Blooms taxonomy)	End of term 1 (1 term/ 10-12 weeks)

Support that will be required from school to achieve goal:

- Providing me with assistance if I have questions about the topic to better educate students
- Other than that, this is a very individual research task which required myself to use academic resources to investigate this unit of work.

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