**Damien -** Hello, my name is Damien, and I'm a VCE Product Design and Technologies teacher. This video is one in a series of videos developed to support the delivery of VCE Product Design and Technology Study Design accredited from 2024 to 2028. This video will focus on Unit 1: Design practises. The overview of this video is to look at the summary of content in Unit 1. This includes Area of Study 1, Developing and conceptualising designs, and Area of Study 2, which looks at Generating, designing, and producing. We will also look at the outline of assessment for Unit 1. There are 2 areas of study in Unit 1. Area of Study 1 is Developing and conceptualising designs. Area of Study 2 is Generating, designing, and producing.

Unit 1 is underpinned by the Double Diamond design approach. Teachers need to familiarise themselves with the activities in the Double Diamond design approach as described in the VCE Product Design and Technologies Study Design on pages 13 and 14. These activities are not sequential. Students do not have to complete each activity in order, but rather approach the order of each diamond task as suited to their project needs. The process of designing should be adapted and customised to suit each project. It is important to note that the design process is not linear but rather an iterative approach. Students need to explore the work of designers across relevant specialisations in product design. They need to explore how designers collaborate and how designers work in teams.

Unit 1 is also about students analysing and evaluating existing products and current technological innovations. This links into the cross-study specifications such as design briefs and factors influencing product design. Teachers need to provide opportunities for students to demonstrate teamwork and collaboration in the teaching programme. The study design provides guidance to teachers around these two terms. Teamwork is the combined individual efforts of all team members towards a shared goal such as a design solution. For example, if students are working in a team to design an item from recycled fabrics, activities to demonstrate teamwork could include the division of tasks where team members collectively determine the various tasks required to complete the project, such as cutting patterns, sewing, attaching embellishments, or creating closures. They can divide these tasks among themselves based on individual strengths and preferences, ensuring that all aspects of the item are covered. As each student works on their assigned tasks, teamwork comes into play when integrating their individual contributions into the final item. For example, one student's sewn pieces need to align with another student's fabric cuttings.

Teamwork also involves providing assistance and support to one another throughout the project. For example, if one student is struggling with a particular sewing technique, others can offer guidance, tips, or even demonstrate the process. By helping each other, they overcome challenges and can improve their individual skills. Collaboration is the cooperative efforts towards a shared goal by individuals working together on and contributing equally to an activity. Collaboration involves shared responsibility and collective ownership with active engagement from all individuals. Examples of collaboration include group discussions, brainstorming ideas, analysing problems, and reaching consensus about processes.

So, during the making of an item from recycled fabrics, students could collaborate to problem solve together, they could brainstorm ideas, evaluate different approaches, and make decisions. Pulling their creative and critical thinking skills to overcome obstacles and make progress towards their shared goal is another example of collaboration. Outcome 1. On completion of this unit, the student should be able to apply design thinking strategies to research, critique and communicate a response to a need or opportunity and work collaboratively and in teams to develop and propose graphical product concepts that address a design brief. It is important to understand command terms and using the VCAA glossary to assist with ensuring the teaching programme provides opportunities for students to demonstrate the outcome through what they do, say, make, draw, or write. That is, the teaching programme provides opportunities for students to demonstrate a satisfactory standard.

 Area of Study 1 focuses on developing and conceptualising designs which encompasses activities from the first and second diamonds as highlighted on the screen. This is where students will investigate and define needs and/or opportunities as well as proposed graphical product concepts. Students will develop visualisations, design options, and a working drawing. And throughout this process, they will be evaluating their drawing as well as planning and managing the process. Students also need to be taught about the processes designers used to conduct research. They also need to know about the types of research. Quantitative research refers to the collection of numerical data. It is about numbers. Qualitative research refers to the collection of non-numerical data such as opinions or subjective experiences. It is about words. There are several different methods to collect data, and students need to be specific about which types of research methods collect which types of data.

For example, a questionnaire can collect both quantitative and qualitative data. It depends on the questions being asked. Primary research refers to the process of collecting original data directly from the sources through methods such as questionnaires, interviews, experiments, observations, or testing. Secondary research is the process of gathering and analysing existing data and information that has already been collected by others such as from reference books or journals or the internet. Ethical research methods involve adhering to principles and practises that prioritise the wellbeing, autonomy, and rights of research participants. This includes obtaining informed consent from participants, ensuring confidentiality and privacy of their data, minimising potential harm or risks, providing debriefing and support, and maintaining integrity in data collection, analysis, and reporting.

Additionally, ethical research involves conducting research with cultural sensitivity and inclusivity, avoiding conflicts of interest, and ensuring transparency in the research process. It also includes the welfare and humane treatment of animals involved in research. There is further information in the cross-study specifications under the Health, safety, and ethical research considerations heading. Students formulate a design brief with reference to factors that influence design in Area of Study 1. Teachers need to ensure the relevant cross-study specifications are included in teaching of this content. Students also develop and use criteria to inform and evaluate graphical and physical product concepts, as well as evaluate processes to design and make the product as well as the finished product.

Students develop graphical product concepts using appropriate drawing systems. Graphical product concepts refers to visualisations, design options, and working drawings. Graphical refers to drawings. These drawings are done by manual or digital means. On completion of this unit, the student should be able to work collaboratively and in teams to trial and test, evaluate and use materials, tools and processes to determine their chosen product concept and produce a product through implementing a scheduled production plan, as well as reflect on and make suggestions for future improvements when working collaboratively and as a team. It is important to understand the command terms using the VCAA glossary to assist with ensuring the teaching programme provides opportunities for students to demonstrate the outcome through what they do, say, make, draw, or write. The teaching activities should provide opportunities for students to demonstrate an 'S'.

In this area of study [2], there is a focus on generating and designing, producing and implementing, evaluating, and planning and managing. Students create a series of prototypes based on their graphical product concepts. They experiment with the physicality of their product concepts and apply design thinking techniques to generate and design product concepts that employ creative and safe use of a variety of materials, tools and processes. Here, students need to be taught strategies to think creatively, critically, and speculatively. Students propose physical product concepts through experiments with materials, tools and processes, and prototyping. The work students undertake is practical in nature and involves a variety of hands-on activities. Students work technologically to explore and test materials, tools and processes, and practise safe skill development to propose physical product concepts.

The physical product concepts may not necessarily be the overall product, but rather may be elements of their proposed design solution. The cross-study specifications provide details of the concepts which underpin Units 1 to 4. The concepts and further information are provided on pages 11 to 19 of the study design. These concepts need to be read in conjunction with the key knowledge and key skills of the unit. This learning activity comes from the VCAA support material for VCE Product Design and Technologies. It is one example of how content from the key knowledge and key skills could be taught. It also illustrates how the cross-study specifications relates to this content. In this example, asks students to watch a YouTube video that examines Osborn's Checklist, also known as SCAMPER, an ideation technique created by brainstorming expert, Alex Osborn. It then asks students to draw one visualisation for the design product in the centre of an A3 piece of paper.

Around this visualisation, then students use Osborn's Checklist to create seven other sketches based on that drawing by working through the SCAMPER acronym, substitute, combine, adapt, modify, put to another use, eliminate, reverse, every five minutes. Students then could repeat this exercise to develop a range of potential visualisations that may be developed into design options. This is an example of using manual drawing techniques. Assessment. Suitable tasks for assessment in this unit are a multimodal record of evidence of research, development and conceptualisation of products as well as a reflection on collaboration, teamwork, and ways to improve in the future. Practical work: a demonstration of graphical and physical product concepts including prototyping and making final proof of concept along with a finished product. Students do not need to work in teams to create a product. The task could provide opportunities for students to demonstrate teamwork along with a collaboration when completing an individual task.

For example, teamwork also involves providing assistance and support to one another if a student is challenged by a particular technique or process. Others can offer guidance, tips, or even demonstrate the process as part of demonstrating teamwork. The purpose of assessment is to rank the student cohort. Assessment may contribute to determining the 'S' or 'N' judgement. Students should have the opportunity to demonstrate the outcome statement through the teaching activities.

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