**VCE Product Design and Technology (2018–2023)**

School-based assessment report

GENERAL COMMENTS

This report provides advice based on the first year of implementation of the [*VCE Product Design and Technology 2018–2023 Study Design*](https://www.vcaa.vic.edu.au/Documents/vce/technology/ProductDesignTechnology_SD_2018.pdf). The [VCE Product Design and Technology Advice for teachers](https://www.vcaa.vic.edu.au/Pages/vce/adviceforteachers/pdt/introduction.aspx) on the VCAA website provides teaching and learning advice for Units 1–4. Other support materials for the study can be found on the VCE Product Design and Technology study page including [Frequently Asked Questions](https://www.vcaa.vic.edu.au/Documents/vce/technology/ProductDesignTechnology_FAQS.docx).

Results of the School-based Assessment Audit indicated that the majority of issues that arose with assessment were due to the VCE assessment principle: valid. Such issues included:

* referencing content from the previous study design
* using language/terminology from the previous study design
* not addressing all key knowledge and key skills across the assessment
* using unmodified tasks from previous years
* using commercially-produced tasks with insufficient or no modifications
* referring to timelines outside the requirements of the study design.

Most schools audited were found to have assessment practices that were equitable, however, schools must ensure that school-based assessment (School-assessed Coursework (SAC) and School-assessed Tasks (SAT)) take places in the academic year in which the student is enrolled. It must not take place during transition programs in the previous year. See [*VCE and VCAL Administrative Handbook 2019*](https://www.vcaa.vic.edu.au/Documents/handbook/2019/adhb19.pdf), p. 44.

Most schools audited identified that one SAC task was used for each outcome and the same task was offered to all students helping to ensure that assessment was equitable.

Some schools were found to have assessment practices that were not balanced. This was due to the following reasons:

* no variation of task type for assessment being offered to students
* many SACs structured in the same format of short-answer questions
* rubrics and/or marking criteria covering content outside the scope of the study design
* marking guide/criteria not adding up (or dividing into) the set score.

School-based assessment was generally found to be efficient with the minimum number of tasks being set and students not being over-assessed or put under undue stress.

The audit identified that a high proportion of schools were using unmodified commercially-produced tasks, therefore not meeting the VCE assessment principle of validity or authentication. Teachers are required to modify the tasks; however it is recommended that teachers develop their own tasks to reduce issues of authentication. Commercially-produced tasks are in the public domain which students may access, giving them an unfair advantage. The audit also noted that some schools were not modifying tasks from previous years.

Where possible, it is recommended that SACs are a combination of task types according to those listed on pages 25 and 30 of the VCE study design to ensure that assessment is balanced.

SPECIFIC INFORMATION

Unit 3: Applying the product design process

Outcome 1

*Investigate and define a design problem, and discuss how the design process leads to product design development.*

This outcome is marked out of 25 marks and combined with Outcome 2 contributes to 12 per cent of the study score.

**Task type**

* a structured, annotated design brief, evaluation criteria and an explanation of how the designer will research and develop design ideas from the design brief, with reference to product design factors.

Outcome 1 requires students to develop or deepen their understanding of the cross-study specifications found on pages 9–12 of the study design so that they can apply this understanding when working on the SAT in Outcome 3. It is for this reason that i the SAC task for Outcome 1 should be undertaken early in the school year. The Audit Panel noted that some schools were conducting tasks related to this outcome late in Term 1, or in Term 2.

To demonstrate the key knowledge and key skills of Outcome 1, students are required to develop a structured design brief and annotate it with reference to the product design factors listed on page 11 of the VCE study design. The Audit Panel noted that the majority of schools provided students with either one or a limited range of design scenarios to choose from to develop their design brief. Many schools identified the use of commercially produced tasks which raises authentication issues as many students across many schools are provided with the same scenarios. The *VCE and VCAL Administrative Handbook* states ‘where commercially produced tasks are being used for School-based Assessment, the school should ensure the tasks meet the requirements of the study design and that they have been sufficiently modified to enable student work to be authenticated.’ (p.74). Where schools only teach one stream of materials (either non-resistant or resistant materials) it is preferable that scenarios given to students are from the material category that the students are familiar with/will be working with.

Use of correct terminology is important when designing assessment as students may use or refer to their SACs as revision for their end-of-year examinations. One of the biggest concerns identified with this outcome was reference to terminology from the previous study design, specifically a high number of schools still referring to a ‘client’ rather than an ‘end user/s’. Other references to terminology from the previous study design included three-part evaluation criteria instead evaluation criteria that has four parts (page 9 in study design), and reference to ‘design priority’/’design problem’.

Outcome 2

*Explain and analyse influences on the design, development and manufacture of products within industrial settings.*

**Task type options**

The student’s performance on the outcome is assessed using one or more of the following:

* extended response
* a short written report
* an oral presentation accompanied by notes and/or visual materials.

This outcome requires students to demonstrate their understanding of a range of key knowledge and key skills (pages 22–23 of the study design) through undertaking one or more of the three task types listed above. While the scope of this outcome remains largely unchanged from the previous study design, there is some reduction in the number of key knowledge and key skills to address. The audit revealed that many schools were assessing content from the previous study design that was not required for this outcome. This included five sustainability models instead of the four, and OH&S and Australian and International (ISO) standards. OH&S and Australian and International (ISO) standards fall under the legal responsibilities parameters of the product design factors but are not listed as key knowledge for this outcome. It was also found that while the term ‘obsolescence’ was referred to in the study design, the term ‘planned’ obsolescence was not. The responses indicated that many schools were using commercially produced tasks and/or unmodified tasks that were not checked against the requirements of the current study design.

Assessment

The extended response task made up of a question-and-answer style format was the most common task type used by schools. A smaller number of schools chose the short written report where students were taken on an industry visit to a manufacturing firm or they researched a particular company or product online. Schools need to be mindful that this task may not address all key knowledge and key skills and so an additional small task may be required.

It is important that students are provided with clear instructions about the nature of the task, how they will be assessed (marking guide, rubric or performance descriptors) and the task conditions.

Outcome 3

*Document the product design process used to meet the needs of an end-user/s, and commence production of the designed product.*

**Task type: School-assessed Task (SAT)**

* A folio comprising:
	+ An end-user/s’ profile, a design brief, evaluation criteria, research, visualisations, design options with justification of the selected option, working drawings of final option, a scheduled production plan, a list of relevant processes used for larger scale production, and a record of progress and modifications. The design folio must include documentation of decisions, and acknowledge sources of information.
	+ Production work accompanied by a record of production progress and documentation of modifications with justification of these changes (text and images should be included).

Students are required to undertake research with an end-user/s that will lead to the development of a design brief. The written design brief is to address all the relevant product design factors, and constraints and considerations are to be extracted from the brief. Evaluation criteria, to be written in four parts as described in the VCE study design, are to be suitable for the design options and final product.

The audit revealed that many schools were referencing a ‘client’ rather than an ‘end user/s’. The term ‘client’ is no longer in the VCE study design and students must design for an end-user or end-users.

A range of research is to be conducted that relates to the design brief. It should address a number of the product design factors, with design inspiration drawn from this research and presented as visualisations. Research and visualisations should look connected. The timeline dates provided by many schools indicated that inadequate time was allocated to the research step. The SAT requires students to design and produce innovative and creative products. When developing a timeline for Outcome 3, it is important that an appropriate amount of time is allocated to folio tasks based on what that task entails to ensure that students have the best opportunity to perform at their highest level.

Assessment

Marks for Criteria 1–3 are submitted to VASS in the reporting cycle that occurs in June. This covers students’ demonstration of skill in:

* developing an end-user/s’ profile, research, a design brief and evaluation criteria with reference to the product design factors
* conducting research and communicating developmental work
* developing creative and innovative design options, and ability to gain end-user/s’ feedback and justifying the preferred option.

Research areas that can be presented in folios to address Criterion 2 may include the following product design factors:

* Visual, tactile and aesthetic (design elements and principles): exploring different forms
* Purpose function and context: exploring how the product will need to function and in what context will it be used.
* Legal responsibilities and user-centered design: ergonomic and safety considerations
* Innovation and creativity: exploring how to develop or improve a product.

Many schools audited had only nominated one week for students to conduct and complete their research and visualisations. It is suggested that more than a week is needed for this process.

There is an emphasis on end-user/s’ feedback throughout the SAT. At various stages, students need to be gaining feedback from their end-user/s through conducting research at the ‘Investigating and defining’ stage to develop a profile, and throughout the ‘Design and development (conceptualisation)’ stage resulting in the students selecting their preferred design.

Students must demonstrate the use of both creative and critical thinking techniques. There are many ways that students can demonstrate creative thinking; e.g. through using particular graphic organisers and charts or creative thinking techniques such as [SCAMMPERR](https://www.mycoted.com/SCAMMPERR). There are also many ways students can demonstrate critical thinking; e.g. through online communication with end-user/s, blogs, social media, multimedia, etc. Students are encouraged to be as creative and innovative as possible with the content they include in their folio. The audit indicated that many schools provide students with templates to use and are therefore not providing students with the opportunity to perform at the highest level in their demonstration of creative thinking.

The evaluation criteria for the design planning and production, decision matrix and GANTT chart are not required for the folio. The Audit Panel noted that some schools had set these folio tasks for students to complete. This content is outside the scope of the study design.

Many schools audited were unclear on what needed to be included in the ’scheduled production plan’. These are listed in the product design process (p.10) and key knowledge of the study design (p.24). Very few schools had included the identification of how the product/s would be manufactured in industry.

Many aspects of the tasks were completed under teacher supervision; however where work was being completed outside of class, teachers were documenting progress using the VCAA Authentication Record Form from the *2018 Administrative information for school-based assessment – Product Design and Technology.*

The Audit Panel noted that most schools were aware of the need to provide adequate safe storage of SAT work.

There was evidence of marking consistency with appropriate cross-marking practices in place. Where only one teacher was teaching the study, most teachers would cross-mark with another teacher in the school familiar with the study, and there was evidence of partnerships with other schools. Cross-marking is important in ensuring that all work is assessed fairly and to help teachers rank their students.

All schools used the VCAA performance descriptors to provide mark allocations for Criteria 1–3 for Outcome 3. Most teachers used the VCAA performance descriptors for Outcomes 1 and 2, however in some instances, teachers developed their own marking schemes, which were appropriate to the task. Marking schemes from commercially produced tasks were not always suitable to the requirements of the task type; often identifying and assessing content outside the scope of the study and not providing students with the opportunity to demonstrate the outcome at the highest level.

SPECIFIC INFORMATION

Unit 4: Product development and evaluation

Outcome 1

*Compare, analyse and evaluate similar commercial products, taking into account a range of factors and using appropriate techniques.*

**Task type options**

The student’s performance on the outcome is assessed using one or more of the following:

* an extended response
* a short written report
* structured questions
* an oral presentation accompanied by notes
* an annotated visual report.

This outcome requires students to be able to appropriately demonstrate that they can compare, analyse and evaluate similar products. They need to be able to identify product attributes of similar products and ideally have an awareness of the product design factors the attributes belong to. They need to understand why certain attributes are priortised differently for designers, manufacturers and end-users.

The Audit Panel noted that the choice of products that schools chose to analyse was varied and suitable for this outcome. However, many schools were using unmodified commercially produced tasks therefore creating issues of authentication.

A number of schools had updated their SAC tasks from previous years yet they still included key knowledge and key skills from the previous study design that are not relevant to the current study design.

It was found that many SACs asked students to write evaluation criteria to evaluate the products. It is not a requirement of the current study design that students write this type of criteria (see key skills p. 27 in study design).

A focus of Outcome 3 requires students to focus on the sustainability of products in terms of the environmental, economic and social impacts that would be of concern for the end-user/s. The audit identified that many SAC tasks did not place enough emphasis on the sustainability of the products with very few questions or marks allocated to assessing this key knowledge and key skill.

Assessment

The structured questions task type was found to be the most common task type used by schools. Many schools chose to use the VCAA performance descriptors however it often did not align with the SAC in terms of the weighting. It was generally found that not enough emphasis in the structured questions had been placed on analysing the sustainability of the products. In addition, some SAC tasks included content from the previous study.

Outcome 2

*Apply a range of production skills and processes safely to make the product designed in
Unit 3, and manage time and resources effectively and efficiently.*

**Task type: School-assessed Task**

* A functional product that conforms to standards of quality indicated in the design brief outline of context.

In addition to the production of the product, this outcome requires students to produce supporting documentation in their folio, recording production progress and any modifications made along the way.

Across schools, the audit revealed that the assessment timelines for completion of Outcome 1 and 2 varied. This ranged from students completing their products four weeks into Term 3 through to other students having until two weeks into Term 4. While it is up to schools to set due dates for tasks, it is important that it is equitable for all students completing the study. If the product is finished very early, these students have extended time on examination revision however may not have enough time to work on their product. Students who finish their SAT in Term 4 have little to no time for examination revision. It is important that all students have a fair opportunity to complete the SAT and prepare for the examination.

The Audit Panel noted that many schools were asking students to complete GANTT charts. Whilst it is ok for the students to complete, it is not a requirement of the outcome – teachers need to refer to the study design for information about what is required in the scheduled production/work plan (Outcome 3, Unit 3, p.24 in study design).

Assessment

Outcome 2 is to be assessed against the VCAA descriptors for Criteria 6, 7 and 8. While marks for Criteria 1–3 are submitted in June, some of the elements for Criteria 4 and 5 would have also been completed in Unit 3.

Criteria 6, 7 and 8 (Outcome 2) covers students’ demonstration of skill in:

* application of appropriate processes, including risk management and recording progress
* project management and justifying modifications in realising the preferred option
* developing a quality product that is creative and innovative.

Most schools indicated that they had a good understanding of the risk assessments and are familiar with the guidelines around the use of restricted machinery.

Students are encouraged to provide photographic evidence of production progress. This can be presented alongside written documentation or can be a video or blog. Documentation should include details of work completed, time taken, dates, reference to safety, quality measures and (ideally) some end-user/s feedback. This documentation helps support with the authentication of the student’s work. Any work that is outsourced needs to be acknowledged. The results of the audit were positive in identifying that schools were instructing students to complete the requirements of this outcome.

It is also a requirement that schools provide safe and secure storage of SAT work – folio and product.

Outcome 3

*Evaluate the finished product through testing and feedback against criteria, create end-user/s’ instructions or care labels and recommend improvements to future products.*

**Task type: School-assessed Task**

* a written report that includes evaluation of the product.

AND

* relevant end-user/s instructions or care labels which highlight the features, assembly, care and/or repair of the product in any of the following formats: video tutorials, annotated image of the product or other multimedia format.

Assessment

Outcome 3 is to be assessed against the VCAA descriptors for Criterion 9.

Criterion 9 covers students’ demonstration of skill in:

* evaluating the finished product; user instructions/care labels which communicate product features, care, use and/or assembly.

Students are required to complete an evaluation report on their final product/s. With the focus of the SAT being that a student designs a product for an end-user/s, there needs to be strong evidence documented in folios of students testing their product and gaining feedback from the end-user/s. Students are required to evaluate the success of their product using the pre-determined evaluation criteria written for Outcome 3 in Unit 3. Students must test the criteria and seek feedback from the end-user/s. Recommended improvements to future products must be provided based on their findings.

The Audit Panel noted that some schools were asking students to write an evaluation report on the design, planning and production activities. This is not necessary.

Depending on the type of product students have designed and made, they are to create a care label and/or set of instructions for the end-user/s. Information that can be included is methods of how to care for the product, how to prolong the life of the product, how to use/operate the product, and information on how to repair the product or put it together. It should also highlight the features of the product/s.

The audit identified that some schools were asking students to complete a product presentation, and some schools directed students to design a logo with a company title with its care labels and discuss marketing features. These tasks are not required. The purpose of the care label/instructions is about care and use, not about marketing the product.

The audit showed that many schools were unaware of the return date of the SAT folio to students. Teachers need to refer to the *Important Administrative Dates* and are encouraged to sign up to the VCAA Bulletin so they are kept up-to-date.