**Phil Feain** - Hello and welcome to this VCE Algorithmics (HESS) School-assessed Task on-demand video for the School-assessed Task. The purpose of Video 3 is to support teachers with understanding Unit 4 Outcome 1, the SAT, Criteria 5-7, authentication and assessment for Algorithmics (HESS). My name is Phil Feain and I'm the Curriculum Manager for Digital Technologies with the VCAA.

This presentation will involve the following topics: nature of the task, SAT Criteria 5-7, authentication, assessment and issues identified after marking Unit 4 Outcome 1. Now we'll look at the nature of the task for Unit 4 Outcome 1. Before we discuss the nature of the task, we need to look at the outcome statement. The Unit 4 Outcome 1 statement says: On completion of this unit the student should be able to establish the efficiency of simple algorithms and explain soft limits of computability. The nature of the task for Unit 4 Outcome 1 is stated in the study design and in the Administrative information for School-based Assessment. It involves a formal time complexity analysis of the designed algorithm for the applied problem and an explanation of the consequences of these results of the algorithm's real-world application.

The following slides reference the Administrative information for School-based Assessment for Algorithmics (HESS). We will unpack Criteria 5-7 by looking at the scope of the task and each criterion. There are two parts to Criterion 5 under the headings of formal analysis and under further formal analysis. For formal analysis, Criterion 5 assesses students' skills in determining the time complexity of algorithms. Students are to determine the time complexity of the initial algorithmic solution that they developed as part of the Unit 3 Outcome 3. The word range for this task is approximately 100

- 200 words. Full working of time complexity calculations should also be included. The evidence from this task is observed through Observation 5 and assessed through Criterion 5. For further formal analysis, Criterion 5 assess students' skills in determining the time complexity of algorithms. Drawing on their Unit 4 Outcome 1 knowledge and skills, students are to determine the time complexity of the improved algorithm that they designed as part of Unit 4 Outcome 2. The word range for this task is approximately 100

- 200 words. Full working of time complexity calculations should also be included. The evidence from this task is observed through Observation 9 and assessed through Criterion 5. This is Criterion 5 which involves skills in determining the time complexity of algorithms. The indicators state the task that these students need to complete to satisfy the criteria. These are assessed against the levels of performance. Each criterion is worth 10 marks. In this criterion students are to analyse the time complexity of the initial algorithmic solution. Criterion 6 assesses students' understanding of the consequences of an algorithm's time complexity on its real-world application. Students are to explain the consequences of their initial algorithmic solution's time complexity on its real-world application, including a thorough discussion of practical input sizes and its suitability to the problem's requirements. The word range for this task is approximately 100

- 200 words. The evidence from this task is observed through Observation 6 and assessed through Criterion 6. This is Criterion 6 which involves understanding the consequences of an algorithm's time complexity on its real-world application. In this criterion students are to explain the consequences of an algorithm's time complexity on its real-world application. Criterion 7 is also connected to Criterion 10. Criterion 7 assesses students' skills in the comparison of the time complexities of algorithmic solutions to a real-world/applied problem. Criterion 10 assesses students' skills in the comparison of algorithmic solutions in terms of their coherence and fitness for purpose. Students draw on Unit 4 Outcomes 1 and 2 to compare the suitability of their developed solutions. The word range for this task is approximately 400

- 600 words. The evidence from this task is observed through Observation 10 and assessed through Criterion 7 and 10. This is Criterion 7 which involves skills in the comparison of the time complexities of algorithmic solutions to a real-world/applied problem. In this criterion students are to: compare whether the solutions will render the problem tractable and the real-world implications of this and compare the relative efficiency of the solutions with regard to the constraints of the real-world/applied problem context.

Just a quick look over authentication as this is covered in more detail in the Background to the SAT on-demand video and Authentication on-demand video. Teachers are to fill out these forms during the year. They are to state the date of the observation and submission of each of the components of the SAT. Comment on the observation and the submission of each of the components. And sign their initials for each observation and submission. Students are also required to sign their initials for each observation and submission. At the completion of the unit students have to sign the date the declaration that all resource materials and assistance used have been acknowledged and that all unacknowledged work is their own. The Authentication record form should be updated for each observation and submission during the lifetime of the SAT. It should not be left to the end of the SAT. Authentication record forms can be requested as part of the audit process by the VCAA.

And finally, looking at the assessment of the SAT. This is the Assessment Sheet for scores to be added and submitted through VASS. All ten criteria for the SAT are listed on this page with spaces provided for each of the scores. The next three scores will be filled in for the SAT in Unit 4 Outcome 1.

This last slide looks at issues identified after marking Unit 4 Outcome 1 and 2. If the formal time complexity analysis of the designed algorithm for the applied problem in Unit 4 Outcome 1 is incomplete or contains significant errors, students have the opportunity to make adjustments to their analysis. Teachers can provide feedback on the quality of the analysis, but the adjustments must be student initiated, not teacher directed. The modified analysis is not reassessed. However, this opportunity prevents negative consequential effects for the third part of the School-assessed Task in Unit 4 Outcome 2. In this video we looked at: the nature of the task, discussed SAT Criteria 5-7, looked at authentication, looked at assessment and discussed issues identified after marking Unit 4 Outcome 1.

Thank you for following this presentation. If you have any questions regarding this presentation, you can contact Phil Feain, the Digital Technologies Curriculum Manager, at the contact details below.

[Copyright Victorian Curriculum and Assessment Authority](https://www.vcaa.vic.edu.au/Footer/Pages/Copyright.aspx) 2023