**[Kevin McMenamin]** - To support the implementation of the 2023-2027 study design for Mathematics, the VCAA have developed a series of short videos called information bites, outlining approaches that teachers may wish to utilise in the classroom. The information presented in these videos has been developed by current VCE teachers in conjunction with the VCAA and offer methods of approach without prescribing a course of action. In this particular on-demand video, we will be looking at a number of items linked to pseudocode: a general introduction, the link to computational thinking and algorithms, the study design mentions of pseudocode, reserved and keywords linked to pseudocode, some of the conventions that would be needed in constructing one of these algorithms to describe a particular process or procedure, an example that might be linked to a piece of content in either Mathematical Methods or Specialist Mathematics, and the areas of content that would be particularly linked to pseudocode and might be quite beneficial in terms of the content delivered in both of these courses, and some contact information for the VCAA.

Pseudocode itself is a type of language that would be a joiner between a strict computational programming language and just a general description of methods or techniques that might actually be part of a process. In terms of that bridge, there is a high-level description of the algorithm. There are certain structures that are used in the construction of the pseudocode, but it's not specifically a programming language that's being used. There are certainly a number of reserved words that are part of a pseudocode procedure and structure, and these are often linked to a description of a piece of content or a process that would be linked to a content area of Mathematical Methods or Specialist Mathematics and would have some type of algorithm linked to it as well.

There are common symbols and descriptors used throughout these descriptions of pseudocode and it's certainly a step-by-step process as well. Pseudocode itself is a tool for representing algorithms without the use of a particular programming language and related syntax. Computational thinking generally is going to come into most thinking processes when problems are needing to be solved. In terms of those problems, generally from computational thinking, there would be a decomposition. There would certainly be pattern recognition involved. There would be some sort of mathematical link to the pattern or problem that's going to be solved, and then possibly an algorithm that might be constructed to help the solving process as well. In terms of that algorithm, this can be linked to the pseudocode that was being mentioned in detail just before this slide, and in terms of that link together, the computational thinking and the algorithms that would house this pseudocode then become an integral part of these courses that are being developed for both Mathematical Methods and Specialist Mathematics.

The study design mentions pseudocode in many places throughout Unit 1, 2, 3, and 4. In terms of the general descriptors, it is often found in Outcomes 1 and 2 of these particular course descriptions, but it is also specifically mentioned in the Unit 1 Specialist Mathematics area of study of logic and algorithms. The awareness of pseudocode being in these particular sections of the study design is critical for us as teachers to be able to go and find these and know how it links to the content in these particular areas. The reserved and keywords that might be used throughout the use of pseudocode are the definition of an algorithm that's going to be used, the idea of inputs, outputs, loops that might actually be there, function use. You can see a series of these words that are listed on the current slide and these would be commonplace in the pseudocode that would either be presented or would need to be written as part of the link to Specialist Mathematics and the Mathematical Methods course.

The conventions that are often used with pseudocode, like a programming language, there is one statement per line. You will have to incorporate indentations. There's the backward or reverse arrow that's used, the bold lettering of the reserved words or constructs, which is those mentioned on the previous page, and in terms of the ending of each of these processes, there is certainly a language and a set of keywords that are linked to that ending process nested in with the rest of the description that's actually there. Example of a particular pseudocode, this one's just looking at the smaller of two numbers called a and b. You'll notice in the presentation of the pseudocode describing this particular algorithm, there's a definition of the algorithm at the top.

There's a descriptor of what it's actually doing. Notice the indentations and the boldness of the words, constructs and processes that are required for this particular process to be undertaken. So the development of the pseudocode itself does follow those conventions we were mentioning in the previous slides. The content that might actually be useful in terms of use of pseudocode in the Mathematical Methods course, bisection methods, Newton's method for polynomials, simple simulations, numerical integration, possibly linked to the trapezium method. In Specialist Mathematics, numerical integration, investigation of sequences, some of the vector operations, sample distributions of means, just to mention a few of the areas that the pseudocode might in fact be quite worthwhile.

There is questions that you have regarding the pseudocode, then certainly feel free to contact Michael MacNeill, the Curriculum Manager of Mathematics at the VCAA, and he would be more than happy to help you and answer your questions for this particular area of the course of study. Thank you for joining us on this short on-demand video, and hopefully this has given you some information regarding the pseudocode links to the courses of study.

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