

3.4 Computer systems

3.4.4 Classification of programming languages and translators

Content	Additional information	Chk
<p>Know that there are different levels of programming language:</p> <ul style="list-style-type: none"> • low-level language • high-level language. <p>Explain the main differences between low-level and high-level languages.</p>	<p>Students should understand that most computer programs are written in high-level languages and be able to explain why this is the case.</p>	
<p>Know that machine code and assembly language are considered to be low-level languages and explain the differences between them.</p>	<p>Understand that processors execute machine code and that each type of processor has its own specific machine code instruction set.</p> <p>Understand that assembly language is often used to develop software for embedded systems and for controlling specific hardware components.</p> <p>Understand that assembly language has a 1:1 correspondence with machine code.</p>	
<p>Understand that all programming code written in high-level or assembly languages must be translated into machine code.</p> <p>Understand that machine code is expressed in binary and is specific to a processor or family of processors.</p>		
<p>Understand the advantages and disadvantages of low-level language programming compared with high-level language programming.</p>		
<p>Understand that there are three common types of program translator:</p> <ul style="list-style-type: none"> • interpreter • compiler • assembler. <p>Explain the main differences between these three types of translator.</p> <p>Understand when it would be appropriate to use each type of translator.</p>	<p>Assemblers and compilers translate their input into machine code directly</p> <p>Intepreters do not generate machine code directly but that they call appropriate machine code subroutines within their own code to carry out commands</p>	