# **Coding Languages Comprehension Check**

For questions 1-4, match each vocabulary term to the correct definition:

|  |  |
| --- | --- |
| 1. High-Level Language | a. a set of symbols and rules that programmers use to write computer programs |
| 2. Low-Level Language | b. the code used to communicate programs to a computer’s hardware made up of binary digits (0 and 1) |
| 3. Machine Language | c. a programming language that uses symbols and words that human programmers can more easily understand |
| 4. Programming Language | d. the code used to communicate programs to a computer’s hardware |

1. High-Level Language –
2. Low-Level Language –
3. Machine Language –
4. Programming Language –
5. What are coding languages and why are they necessary?
6. Describe the high-level programming language C.
7. Describe the high-level programming language Python.
8. Describe the high-level programming language Scratch.
9. Why is coding in a high-level language considered to be more efficient than coding in a low-level language?
10. How do compilers and assemblers work together to translate programs from high-level language into machine language?

# **Coding Languages Comprehension Check Answer Key**

For questions 1-5, match each vocabulary term to the correct definition:

|  |  |
| --- | --- |
| 1. High-Level Language | a. a set of symbols and rules that programmers use to write computer programs |
| 2. Low-Level Language | b. the code used to communicate programs to a computer’s hardware made up of binary digits (0 and 1) |
| 3. Machine Language | c. a programming language that uses symbols and words that human programmers can more easily understand |
| 4. Programming Language | d. the code used to communicate programs to a computer’s hardware |

1. High-Level Language – c
2. Low-Level Language – b
3. Machine Language – d
4. Programming Language – a
5. What are coding languages and why are they necessary?
   1. Coding languages, also known as programming languages, are used by programmers to give instructions to computers. They are necessary because computers only understand things written in code, not in human language.
6. Describe the high-level programming language C.
   1. One high-level programming language is called C. It is closer to machine language (a low-level language) than other languages, giving the programmer more control over the program itself. C allows the program to easily access a computer’s memory as well as its hardware. Most operating systems, programs that control the main functions of a computer, use C. Many video games use a version of C called C++.
7. Describe the high-level programming language Python.
   1. Another high-level programming language is called Python. Python is considered to be easy to read compared to other coding languages. It is powerful and can be used to quickly make simple computer programs. Even companies like Google and YouTube use Python!
8. Describe the high-level programming language Scratch.
   1. Both C and Python use lines of text in their code, but Scratch works a little bit differently. Scratch is a block-based language often used to teach beginning programmers how to create code. Block-based languages like Scratch rely on visual elements that fit together like puzzle pieces rather than text alone. This can make it easier for the programmer to create, edit, and fix code as needed. Scratch programs, called scripts, can be used to create simple games and are great practice for beginning programmers.
9. Why is coding in a high-level language considered to be more efficient than coding in a low-level language?
   1. Coding in a high-level language is considered to be more efficient that coding in a low-level one because high-level languages can be used on a variety of machines, whereas low-level languages can be very specific to one type of machine. If programmers only used low-level languages, they would need to write huge amounts of complex code specific to the hardware of each machine that might run the program. High-level languages are therefore more efficient because they must only be written once and work for a variety of machines. In addition, high-level languages involve familiar words and symbols and are easier for programmers to code, edit, and fix, making them more efficient to use.
10. How do compilers and assemblers work together to translate programs from high-level language into machine language?
    1. Compilers and assemblers work together to translate programs from high-level language into machine language. First, the compiler translates a high-level language into an assembly language that will match its machine’s processors. Next, the assembler turns that assembly language into machine code so information can be sent to the machine’s circuits. Compilers and assemblers have made coding much more efficient because programmers no longer needed to enter binary digits into every single code. Not only did this cut down on programming time, it also helped eliminate coding errors.