

Subject: Computer and Information Technology

Topic: Development of Programming Languages

Class level: S.4

Background information:

This is the fourth lesson in a series of six.

Activity 1:

1. Content:

Learning through Writing

Students have already learned about:

- i. Low and high level programming
- ii. Four generations of programming
- iii. the differences between the levels and or generations of programming

By the end of this lesson, students will be able to:

- i. process tabled information to make comparisons and contrasts
- ii. use selected language features in sentences to communicate comparisons and contrasts.

Cognitive levels (Bloom's taxonomy):

Comprehension and Analysis

Activity (Information transfer):

Transforming tabled information into an information text

2. Language for writing

Students will be provided with:

- i. Written models using language signals to compare and contrast information
- ii. Tabled information showing the characteristics of different generations of programming languages

S.4 Computer and Information Technology Development of Programming Languages Worksheet 1

Name: _____ No.: _____ Class: _____ Date: _____

Table contrasting and comparing the characteristics of different programming languages

Low-Level Languages		High-Level Languages	
First generation languages	Second generation languages	Third generation languages	Fourth generation languages
machine dependent		machine independent	
can control the hardware precisely		cannot control the hardware precisely	
consists of 0 or 1 only	consists of digits, letters and special symbols		
non English-like		English-like	
procedural languages		declarative languages	
can directly run by a computer	must be translated into machine codes before it can be executed by a computer		



Write FIVE sentences based on the model below to compare and contrast the characteristics of different programming languages

Examples:
Contrast
1. Low-level languages are machine dependent but high-level languages are machine independent.
Compare
2. Both third generation languages and fourth generation languages are English-like

1. Low-level programming languages can control the hardware precisely *but*

2. *Both* first generation languages and second generation languages *are* _____

3.

4.

5.

Subject: Computer and Information Technology

Topic: Translators

Level: S4

Background information:

Activity 2:

Learning through Reading and Writing

This is the sixth and final lesson in this series.

Students have already learnt the following:

1. The characteristics of different kinds of programming languages.
2. Computers understand/execute only machine language.
3. Translator roles.
4. Three types of translators (*assembler, compiler and interpreter*).

Objectives:

At the end of this activity, students will be able to:

1. use different forms of written language to communicate the same information
2. use exemplars to write a short paragraph to compare and contrast the characteristics of different programming languages

Cognitive levels (Bloom's taxonomy):

Knowledge, Comprehension and Analysis

Activity (Information transfer):

1. Students will use:

- information from their textbook and answer a series of questions to complete a table
- the information in the completed table to write a paragraph to compare and contrast their findings

Language support:

Writing support.

Students will be provided with:

1. exemplars of signalling language to make comparisons and contrasts as well as signal that additional information will follow
2. topic sentences
3. a table of information that compares and contrasts the characteristics of different programming languages

S.4 Computer and Information Technology
Development of Programming Languages
Worksheet 2

Name: _____ No: _____ Class: _____ Date: _____

Comparing and contrasting the characteristics of a compiler and an interpreter



Read pages 89-90 of your textbook.

- A. Complete the following table to compare and contrast the characteristics of a compiler and an interpreter by placing a tick (✓) or a cross (x) in the correct box

	<i>Compiler</i>	<i>Interpreter</i>
Does it translate high-level language into machine language?		
Will it create an object program?		
Can it translate a program that runs independently?		
Can it detect the syntax errors occurring in the program?		
Does it translate the whole source program?		
Does it translate the source program, instruction by instruction?		



B. Use information in the table above to complete the paragraphs below to compare and contrast the characteristics of a compiler and an interpreter.

<i>There are some similarities between a compiler and an interpreter. Both</i>
<i>a compiler and an interpreter</i>
<i>Also, both</i>
<i>However, A compiler</i>
<i>but an interpreter</i>
<i>Also, a compiler</i>
<i>Moreover,</i>