Worksheet: Vocabulary – Unit 1: Algorithms

1. Copy each vocabulary word repeatedly into the boxes to the right of it, then copy the definition of each vocabulary word in the box(es) below it. Make sure you understand the definition. You can also write Chinese characters that will help you remember the meaning.

a.

unambiguous			
clear and precise with only one possible interpretation			

b.

sequence			
an ordered set of instructions			

c.

algorithm			
an unambiguous sequence of steps to solve a problem or perform a task			

d.

accurate			
producing the correct outcome with no errors			

e.

consistent			
producing the same outcome from the same input			

f.

efficient			
achieving the outcome using minimal resources (time, electricity, etc.)			

g.

prompt			
a message to the user requesting input			

h.

variable			
a memory location to store a value that may change while the program is running			

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i.

constant			
a memory location that stores an unchangeable value			

j.

identifier			
a name used to refer to a variable, constant, method, or other element in a program			

k.

flowchart			
a diagrammatic representation of an algorithm			

l.

pseudocode			
a structured, code-like, high-level description of an algorithm			

m.

structured			
organized in a logical, clear manner			

n.

construct			
a smaller part used as a building block			

o.

selection			
a *construct* that allows a choice between alternatives			

p.

iteration			
a *selection construct* that repeats a set of instructions (“loops”) until a condition is met			

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q.

condition			
an expression that evaluates to either *true* or *false*			

q.

decomposition			
breaking down a complex problem into smaller, more manageable parts			

r.

abstraction			
hiding complexity by focusing on the essential features of a problem			

s.

ascending			
arranged in increasing order, from smallest to largest			

t.

descending			
arranged in decreasing order, from largest to smallest			

2. Answer each question using full sentences. Your answers should not be the same as any of your classmates'. The grade points for each is given in parentheses.

a. Give an example of something that is ***ambiguous***. (**1**)

<<Student answers will vary.>>

b. Give an example of something that is ***unambiguous***. (**1**)

<<Student answers will vary.>>

c. You have used ***variables*** in your algorithms. List <u>two</u> ways that you have used variables. (**2**)

Example: *We have used variables to store user input and as loop counters.*

Other possibilities: store an array of values, store the results of a calculation, etc.

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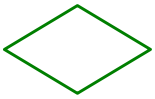
d. You have used ***conditions*** in your algorithms. Which flowchart block requires a ***condition***, and list three pseudocode keywords that require a ***condition***. **(3)**

The flowchart decision block requires a condition.

The pseudocode keywords that require a condition are:

IF (IF..ELSE), REPEAT, WHILE

3. Draw each flowchart symbol and describe how it is used. Marks for neatness.

	Symbol Name	Symbol	Usage
a.	start		*indicates the beginning of the algorithm*
b.	end		*indicates the termination of the algorithm*
c.	process		*indicates a calculation or task to be carried out*
d.	subprocess		*hides the details of a part of the algorithm in a different flowchart*
e.	decision		*indicates a choice to be made*
f.	input		*indicates an input to the algorithm*
g.	output		*indicates an output from the algorithm*

4. There are the three points to consider when deciding whether an algorithm is successful or not. Please give the three vocabulary words that summarize these three points and write the definition. (The answer is both in the textbook and in the lecture slides).

a.	***accurate***	*producing the correct outcome with no errors*
b.	***consistent***	*producing the same outcome from the same input*
c.	***efficient***	*achieving the outcome using minimal resources*
		(time, electricity, etc.)

5. List the three algorithm ***constructs*** mentioned in your textbook.

sequence	*selection*	*iteration*