

Style and layout

Ref Pseudocode

Keywords and case

Pseudocode is the language Cambridge writes algorithms in. It describes algorithms without requiring a general-purpose programming language. This site interprets a defined Cambridge-style subset so you can run examples; an exam answer should follow the notation specified for that paper.

Every keyword is written in **upper case**: IF, REPEAT, PROCEDURE, OUTPUT.

```
DECLARE Count : INTEGER
Count ← 3
IF Count > 0
    THEN
        OUTPUT "Ready"
ENDIF
```

- Write IF, never if or If.
- A keyword can never be used as a name of your own: you may not call a variable FOR.

Common mistakes

- Lower-case keywords. The mark scheme expects upper case.
- Inventing keywords. Only the words in this handout are in the syllabus.

Identifiers

An **identifier** is the name you give a variable, a constant, a procedure or a function.

```
DECLARE NumberOfPlayers : INTEGER
NumberOfPlayers ← 4
OUTPUT NumberOfPlayers
```

Four rules, all from the syllabus:

- It must **start with a capital letter**: Count, not count.
- It may hold only letters and digits – no spaces, no punctuation.
- It is not **case-sensitive**, so Count and COUNT are the same name. Pick one spelling and keep it.
- Make it mean something. NumberOfPlayers earns the reader's time; N does not.

Common mistakes

- `count` $\leftarrow$ 0 – a lower-case start. 0478 requires the capital.
- Number of players – spaces are not allowed inside a name.

Comments and indentation

A **comment** starts with `//` and runs to the end of the line. It is for the human reader; the algorithm ignores it.

```
// Swap the values of X and Y
DECLARE X, Y, Temp : INTEGER
X  $\leftarrow$  1
Y  $\leftarrow$  2
Temp  $\leftarrow$  X    // temporarily store X
X  $\leftarrow$  Y
Y  $\leftarrow$  Temp
OUTPUT X, " ", Y
```

Indentation shows which statements are **inside** a structure. The syllabus asks for four spaces per level, with one exception you must know:

```
DECLARE X, Y : INTEGER
X  $\leftarrow$  7
Y  $\leftarrow$  3
IF X > Y
    THEN
        OUTPUT "X is bigger"
    ELSE
        OUTPUT "Y is bigger or equal"
ENDIF
```

- THEN and ELSE are indented **two** spaces from their IF.
- The statements under them are indented **four**.
- ENDIF lines up with its own IF.

IF X > Y

2 **THEN**

two spaces in from IF

4 OUTPUT "X is bigger"

four spaces: inside the branch

2 **ELSE**

4 OUTPUT "Y is bigger or equal"

ENDIF

lines up with its own IF

Counting the spaces: 0, 2, 4

Common mistakes

- Putting **THEN** on the **IF** line. That is the A-Level 9618 layout – see topic 11.
- No indentation at all. A marker has to see the structure to award the structure marks.