3 Variables, algorithms, and conditionals – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	**Write it 3 times** (English)
algorithm	

Recall

Programs follow instructions to solve a problem:

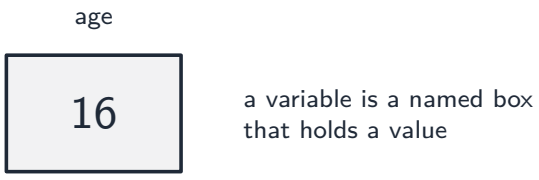
- They store values and calculate with them.
- They make choices depending on the situation.
- A step-by-step method for solving a problem is an algorithm.

This sheet lines up the basics of programming. Each idea has a worked example.

New ideas

1 Variables

A **variable** is a named store that holds a value, which can change as the program runs.



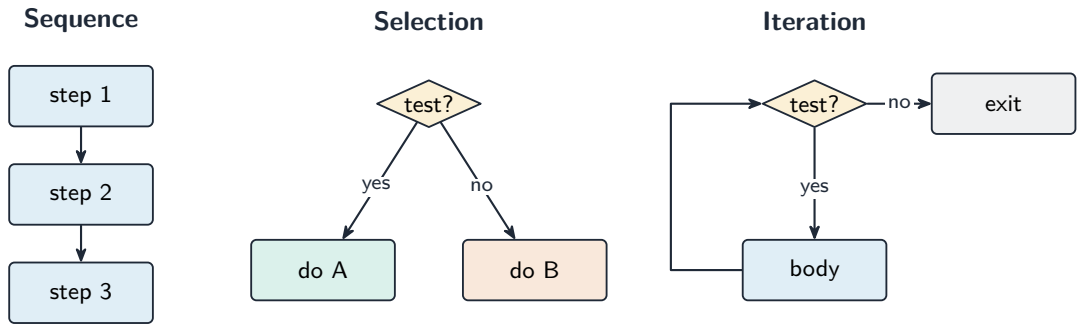

```
score <- 0
score <- score + 10   // score is now 10
```

■ 2 Expressions

An **expression** combines values and operators to compute a result, such as `price * quantity`.

■ 3 Algorithms

An **algorithm** is a step-by-step method to solve a problem – like a recipe. It uses three building blocks: sequence, selection (choices), and iteration (repeats).



■ 4 Conditionals

A **conditional** (IF) chooses what to do based on a true/false test:

```
IF (score >= 50)
    DISPLAY "Pass"
ELSE
    DISPLAY "Fail"
```

Watch out: the order of steps matters. `score <- 0` then `score <- score + 10` gives `10`; swapping the lines would add `10` to an unset value. Sequence is the first building block of every algorithm.

Practice

Try these in order. The methods are all above.

2.1 State what a variable is. [2]

2.2 After `x <- 5` then `x <- x + 3`, state the value of `x`. [2]

2.3 State what an algorithm is. [2]

2.4 Given `score = 40` and the IF/ELSE above, state what is displayed. [1]

2.5 Name the three building blocks of an algorithm. [3]