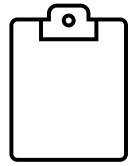
Programming Concepts Simplified

Simple Procedures

You will need pen and paper or pen and whiteboard



Prior Knowledge

Sequence

A **simple sequence** is one instructions following another

An **input** is how we put information into a program (keyboard, mouse, trackpad inputs) or digital device

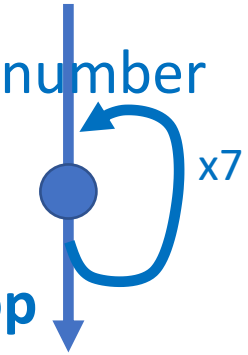
digital devices run programs (oven, kettle, fridge, computer etc)

Repetition

A loop is a set of instructions that are repeated

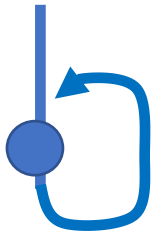
A count-controlled-loop

- Is controlled by the number
- Ends after the number of repeats are complete



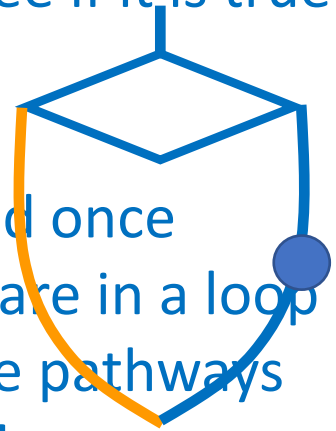
An indefinite loop

- we do not know how many times it will repeat or when it will end



Selection

A condition is a state we can check to see if it is true or false



Conditions

- Only checked once unless they are in a loop
- Two possible pathways **True** and **False**
- Are only checked when reached in flow of control
- Can be used to stop a loop

Procedure Defined

Named set of **instructions grouped** together to control a part of a program

Everyday Procedures

Training a dog to beg

Once you have trained the dog you only need to say **beg** and the dog will go through all the actions to beg

Everyday Procedures

Beg

Sit down
Head up
Raise right paw
Hold paw up
Paw down

Everyday Procedures

Autopilot can fly the plane

fly

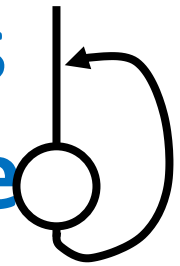
The fly button runs a procedure with very complex code to fly the plane

Two Parts Call Procedure & Procedure

Life Algorithm

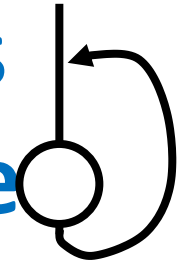
Loop always

breathe



Two Parts Call Procedure & Procedure

Life Algorithm
Loop always
breathe



This **calls** (starts) the procedure by referring to it by name

Define **breathe**
Breathe in
Wait
Breathe out
wait

This is the procedure (look for define to find one)

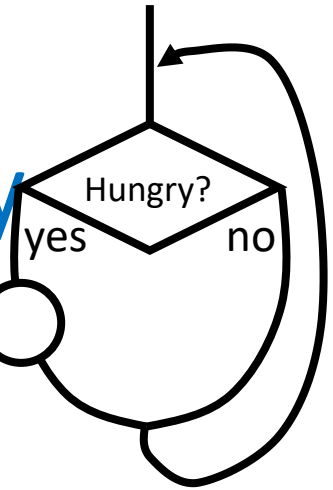
Two Parts Call Procedure & Procedure

Life Algorithm

Loop always

if hungry

eat



Define **eat**

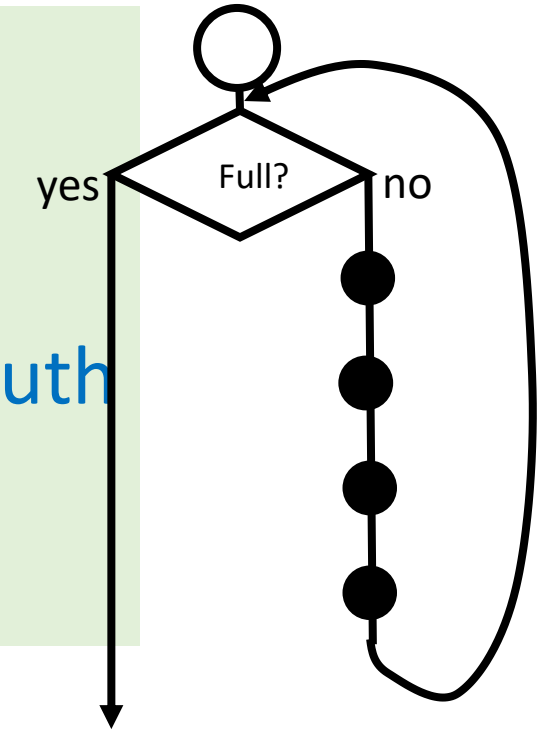
Loop until full

Find food

Put in mouth

chew

swallow



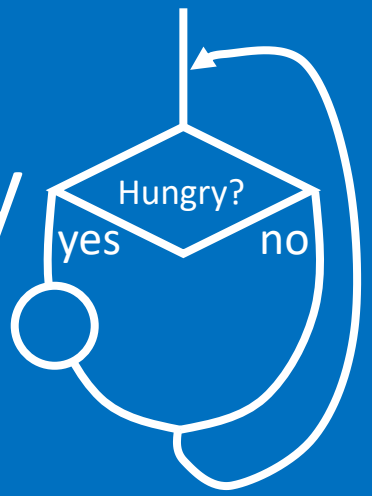
Procedure Question

Life Algorithm

Loop always

if hungry

eat



Define **eat**

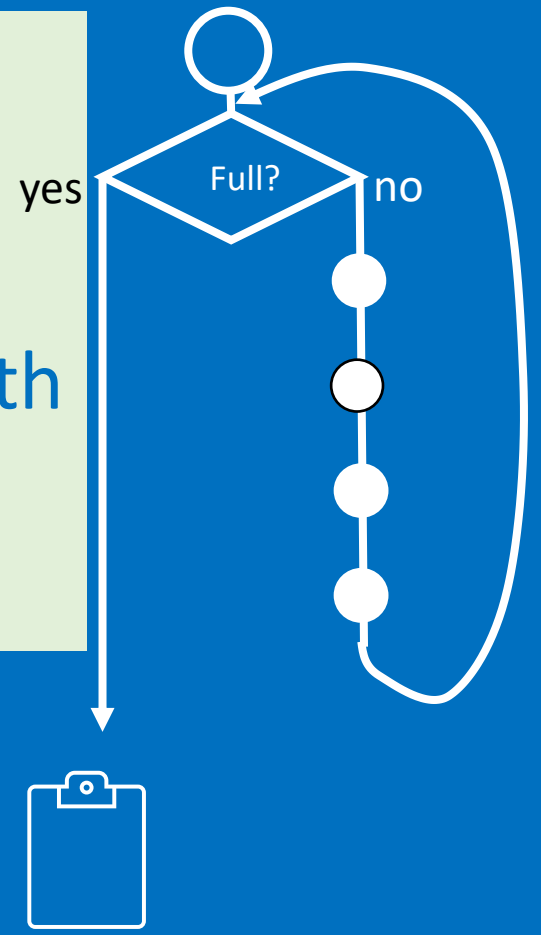
Loop until full

Find food

Put in mouth

chew

swallow



What symbol shows procedures in our algorithm?

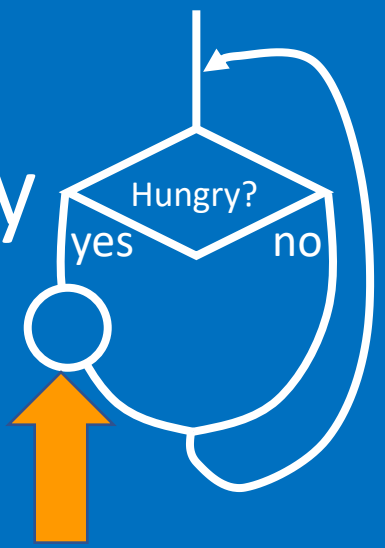
Procedure Answer

Life Algorithm

Loop always

if hungry

eat



Define **eat**

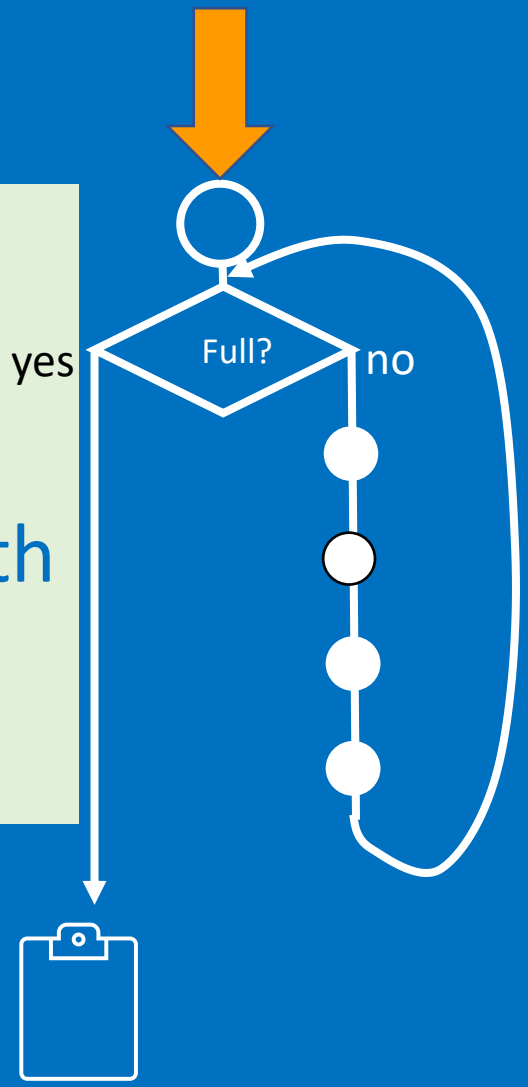
Loop until full

Find food

Put in mouth

chew

swallow



What symbol shows procedures in our algorithm?

Procedure Question

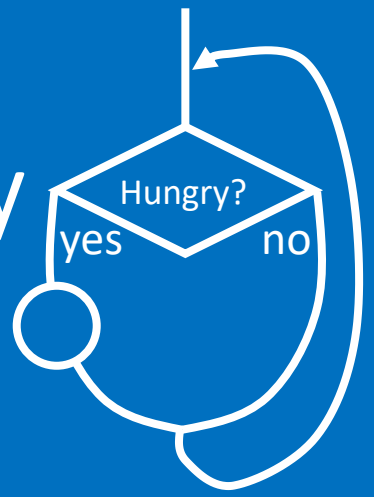
Life Algorithm

Loop always

if hungry

eat

A



B

Define **eat**

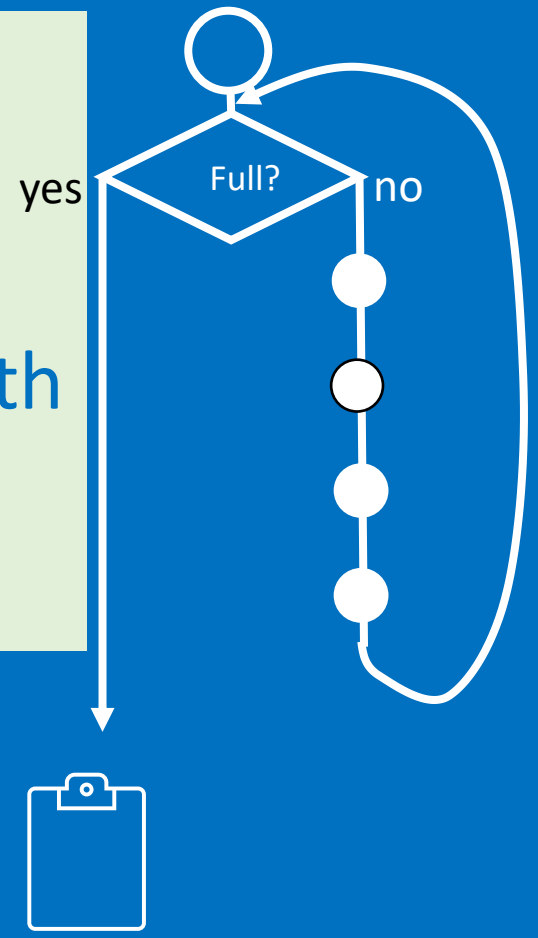
Loop until full

Find food

Put in mouth

chew

swallow



Which part **calls the procedure** A or B?

Procedure Answer

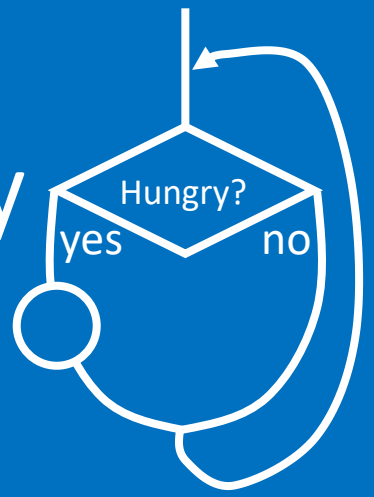
Life Algorithm

Loop always

if hungry

eat

A



B

Define **eat**

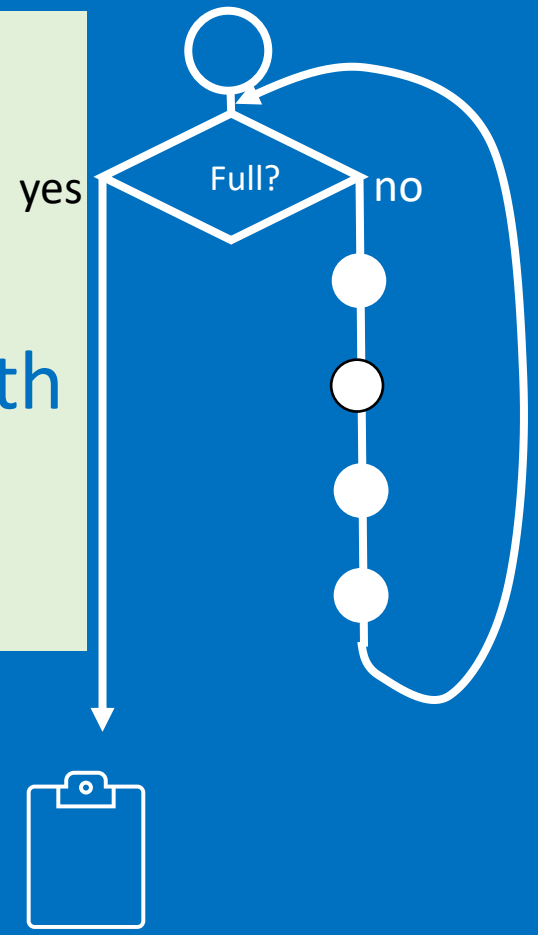
Loop until full

Find food

Put in mouth

chew

swallow



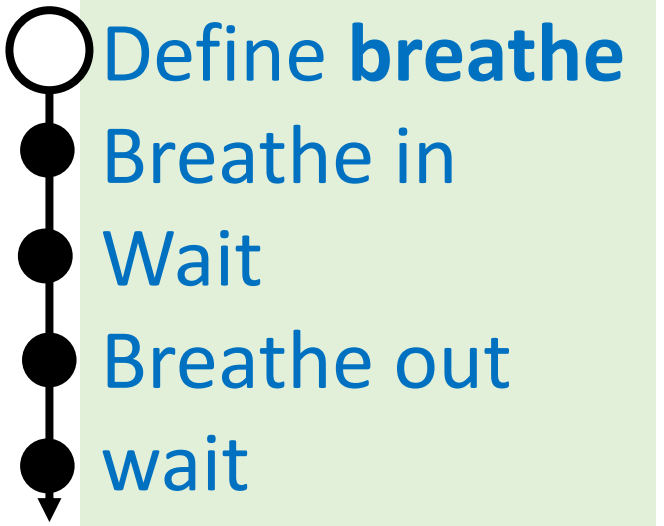
Which part **calls the procedure** A or B? Answer A

Write your own procedure and call it from outside the procedure

Life Algorithm

Loop always

breathe



Define **breathe**

Breathe in

Wait

Breathe out

wait

You can use any concepts such as loops and conditions or keep it simple like this one

Procedure Knowledge

Procedures

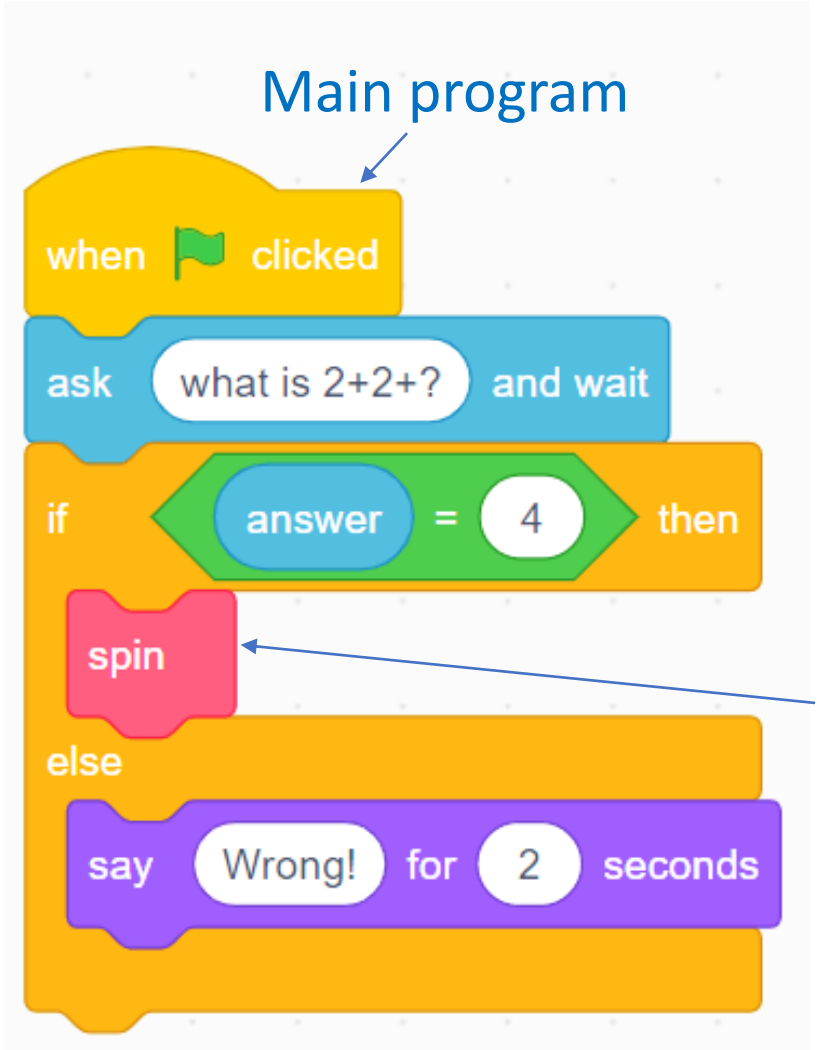
- ❑ Have a name
- ❑ Are called by using their name
- ❑ Can be run many times in a programme
- ❑ Found in My Blocks in Scratch
- ❑ In Scratch has **define** first

Procedure Naming

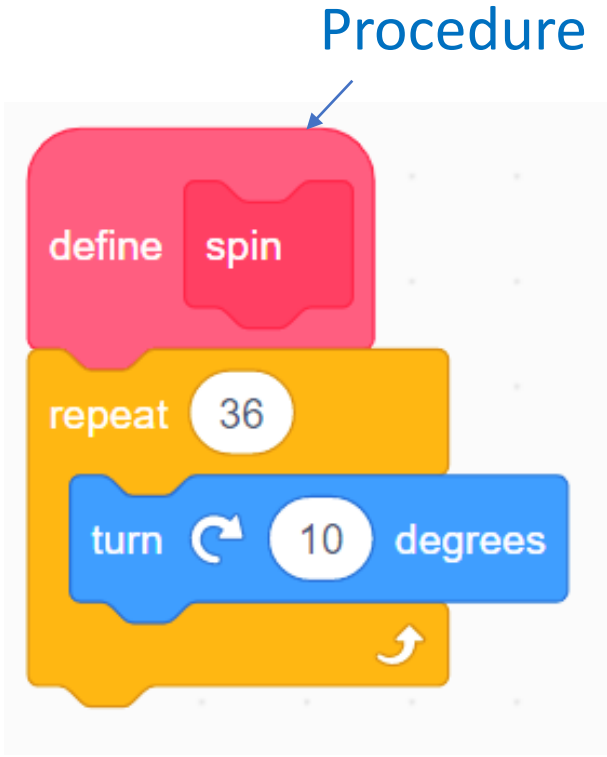
Procedures Naming

- ❑ Name a procedure after the task that it does
- ❑ Avoid naming procedures with spaces
- ❑ Avoid using the same name as a variable

Procedure in Scratch



Command that **calls** (starts) the procedure



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