

Programming Concepts Simplified

Conditions Inside Loops

Terms and conditions of use are on the last slide

Revising Loops

A loop is a set of instructions that are repeated

All loops can

Can replace a sequence where there is a pattern.

Has a flow of control

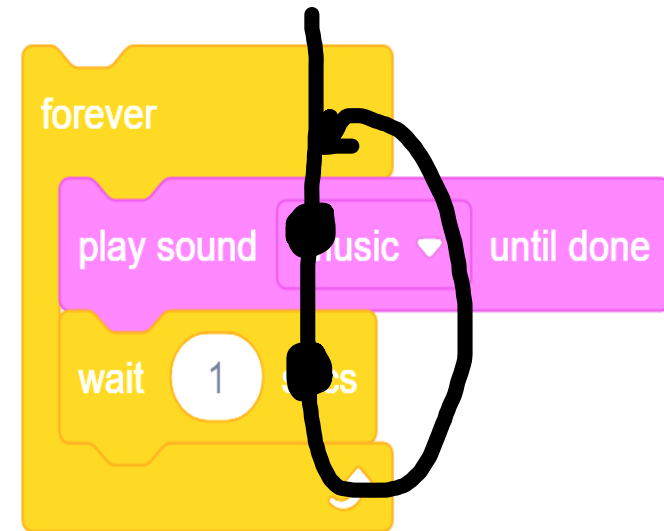
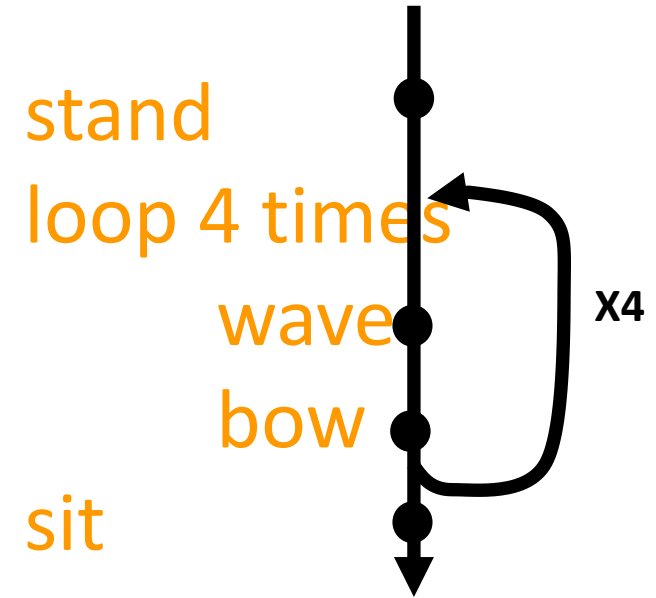
Can be used in an algorithm or in programming

A count-controlled-loop

- Is controlled by the number
- Ends after the number of repeats are complete
- Is called a repeat loop in Scratch programming

An indefinite infinite loop

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



Revising Condition Starts Action

If partner touches shoulder
wave hand



Do you
remember
these?

Revising Condition Starts Action

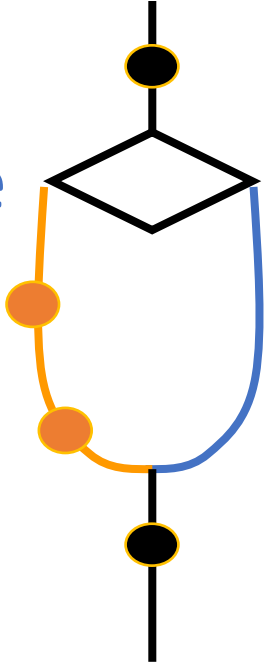
Stand

If partner waves once

Bow

clap

Sit

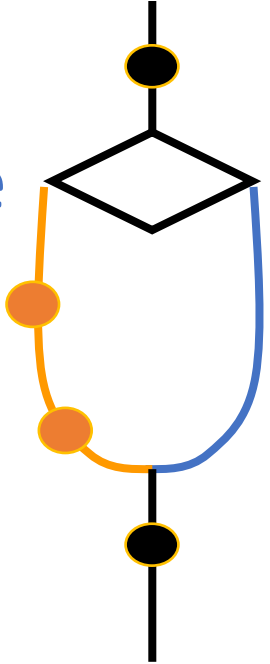


Two pathways

Revising Condition Starts Action

Conditions start with if

Stand
If partner waves once
Bow
clap
Sit



Revising Condition Starts Action

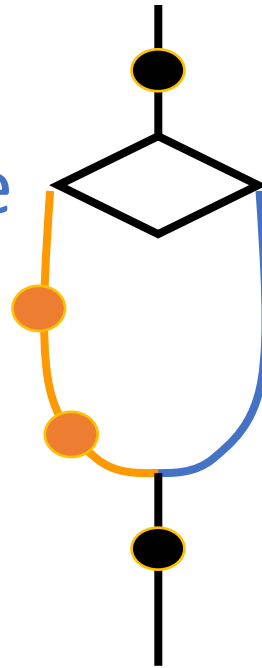
Stand

If partner waves once

Bow
clap

Sit

Actions started by a condition are indented



Revising Condition Starts Action

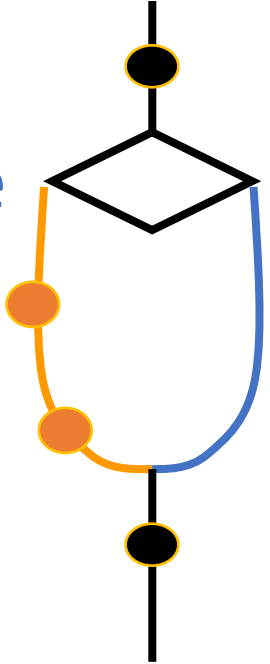
Stand

If partner waves once

Bow

clap

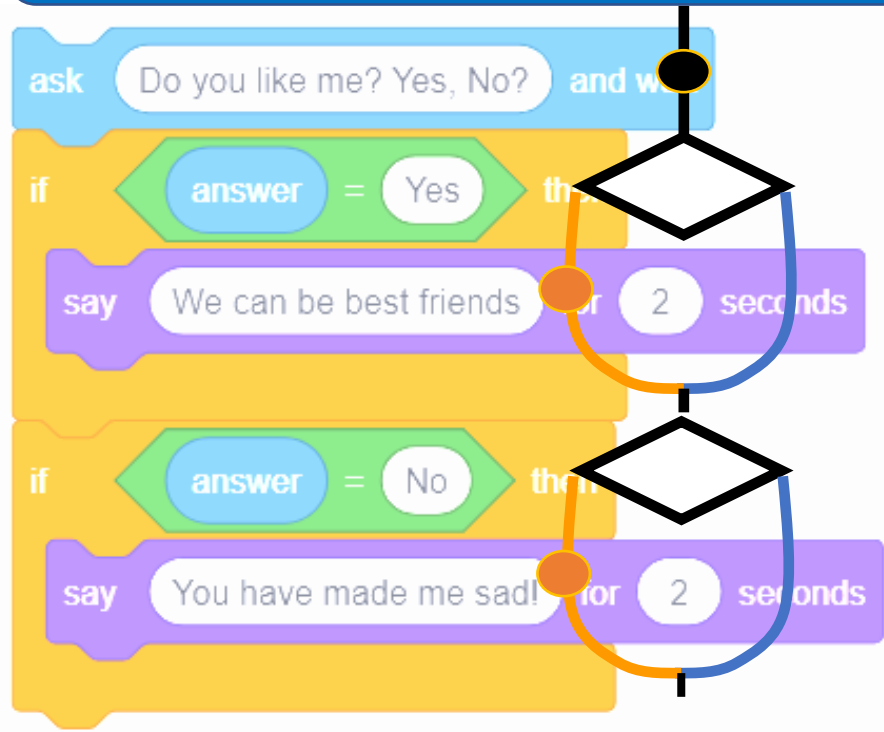
Sit



Conditions are only checked once

Revising Condition Starts Action

In Scratch Code



Conditions starts action inside loop

Loop always

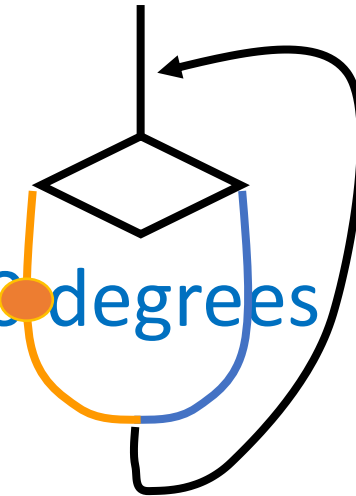
if touch shoulder
turn right 90 degrees

Conditions starts action inside loop

Loop always

if touch shoulder

turn right 90 degrees



Condition is checked many times
because of the loop

Conditions starts action inside loop

Loop always

if touch shoulder

turn right 90 degrees

Work with a
partner to act
this out

Conditions starts action inside loop

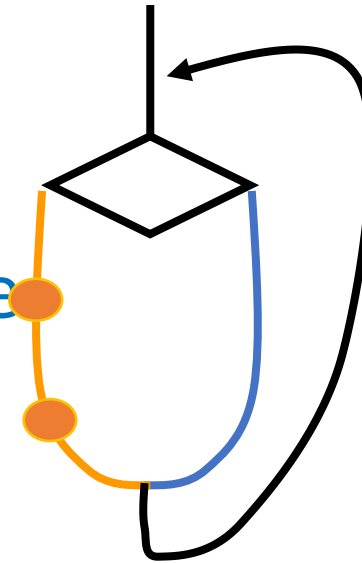
Always loop

if partner clap

jump once

bow once

A condition can start many actions



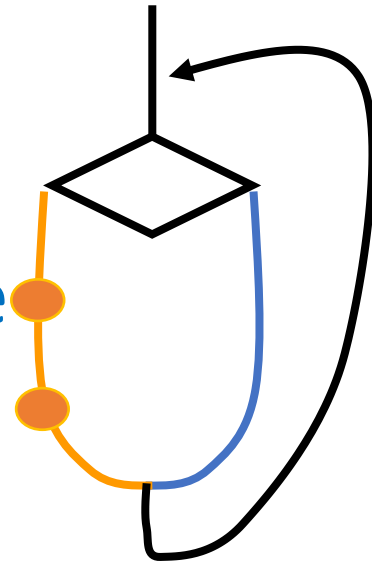
Conditions starts action inside loop

Always loop

if partner clap

jump once

bow once

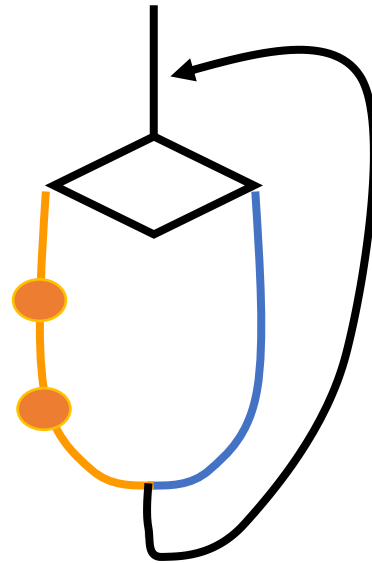


Work with a partner to act this out

Conditions starts action inside loop

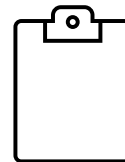
Always loop

if partner clap
jump once
bow once



Try it out with a partner

Now write your own



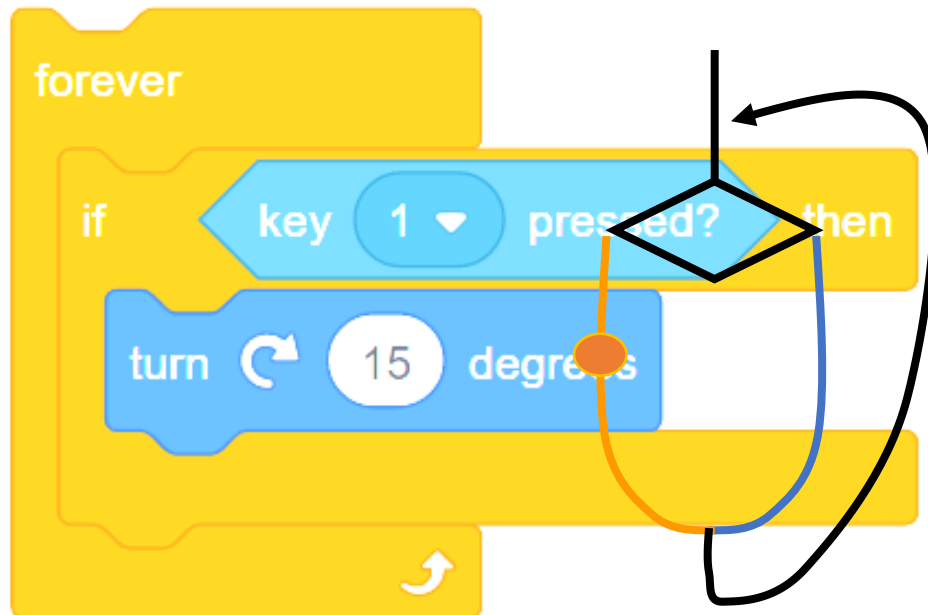
Conditions starts action inside loops

In Scratch Code

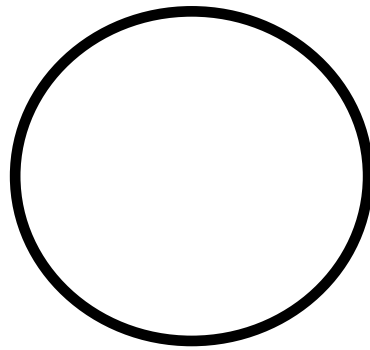
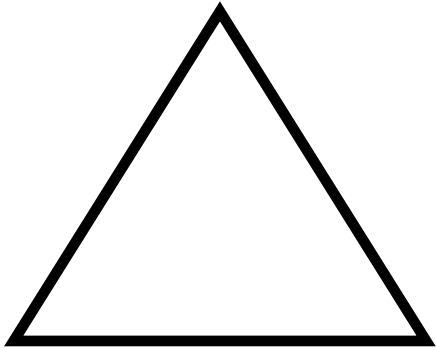


Conditions starts action inside loops

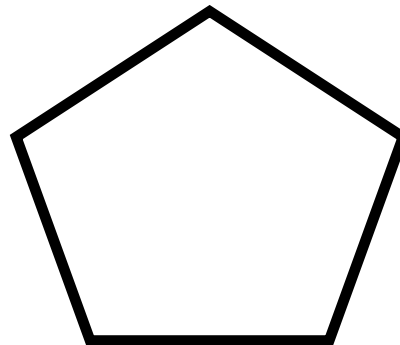
In Scratch Code



Shapes game act it out

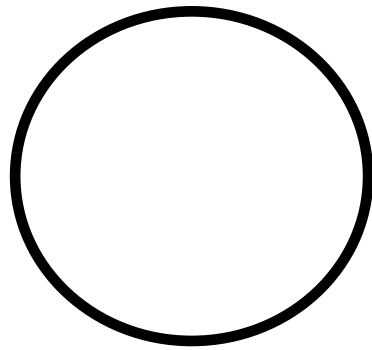
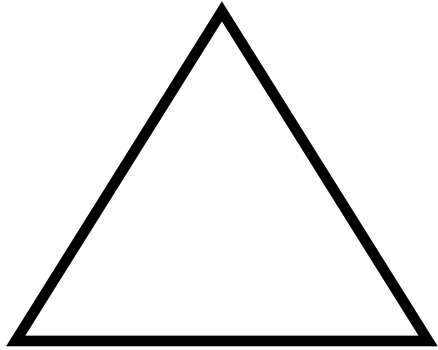


Always loop
if touching circle
hum



Loop always
if touching square
wave

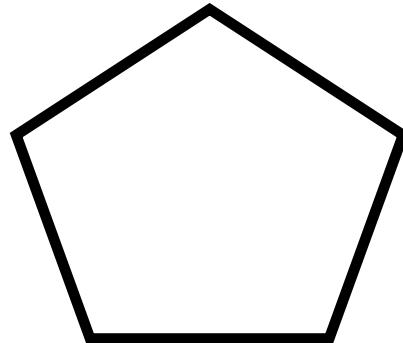
Shapes game write your own



Always loop

if _____

then _____



Task Level Planning

What will your game do?

Keep it short

Examples

Bob will have to go through the maze without touching anything. If he touches the maze walls or enemies he will go back to the start.

You have to steer crab to find food. Shark will swim and try and catch crab. If crab gets food the food will disappear.

Dancer has to dance away from other dancers who dance in patterns. If dancer hits other dancers the game ends. There will be music.

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Design Level Planning

Draw a picture of the screen (stick people NOT art work)



Where will characters
start on the screen?
Initialisation

Design Level Planning

What objects / characters will your game have?

List all things each object will do?

Bob

Move forward space key
Steer right, right arrow key
Steer left, left arrow key
If hit enemies move you back to the start

Enemies

Move on a set path
Start position

Maze gate

Move back and forwards

Crab

Move forwards
Steer right button
Steer left button
If hit shark end game

Shark

Move forwards slowly
Point towards crab

Dancer

Up arrow point up move up
Down arrow point down move down
Right arrow point right move right
Left arrow point left move left

Other dancers

Move on set route
Start position
New dancers add after time

Design Level Planning

Algorithm writing

Loop always
if 1 key pressed
move 10 steps

Loop always
if right arrow key pressed
turn right

Loop always
if bot touch enemies
back to start x and y

Bob
Move button
Steer right button
Steer left button
If hit enemies back to start

Enemies
Glide to in loop
Start position

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<https://computing.hias.hants.gov.uk/course/view.php?id=51>