Programming Ideas Simplified

Count Controlled Loops

Revising Sequence

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

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

Waits can slow a sequence down

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

Algorithm

Stop work

Tidy desks

Collect coats

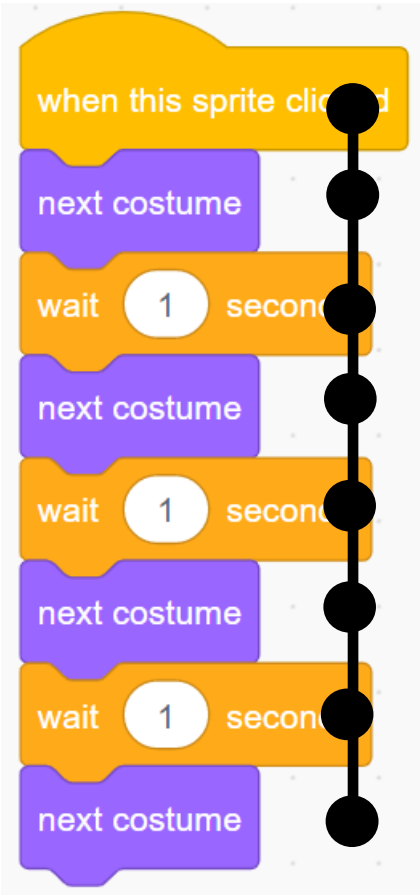
Line up

Leave class

Walk to exit

Leave school

Code



Everyday loops

I know a song that will
get on your nerves
get on your nerves
get on your nerves
I know a song that will
get on your nerves
get on your nerves
get on your nerves

Repeated lyrics

Repeated lyrics

Can you think of a song with a lyric that repeats?

https://www.youtube.com/watch?v=1mgpZ3gaYv0

Everyday loops

Which parts of the dance are repeated?

Brain Breaks - Action Songs for Children - Happy Dance - Kids Songs by The Learning Station

Count controlled loop

do 4 times

wave

Number controls how many times actions repeats

Count controlled loop

```
do 4 times
    wave
```

Actions **inside** a loop are indented

Count controlled loop

do 4 times
wave

Can you act out the algorithm?

Count controlled loop

do 4 times

wave

Wave

Wave

Wave

wave

Did you carry out these actions?

Count controlled loop

```
Stand
do 3 times
    wave
Sit
```

Actions **inside** a loop are indented

Count controlled loop

```
Stand
do 3 times
    wave
Sit
```

Actions **outside** a loop are not indented

Actions **outside** a loop are not indented

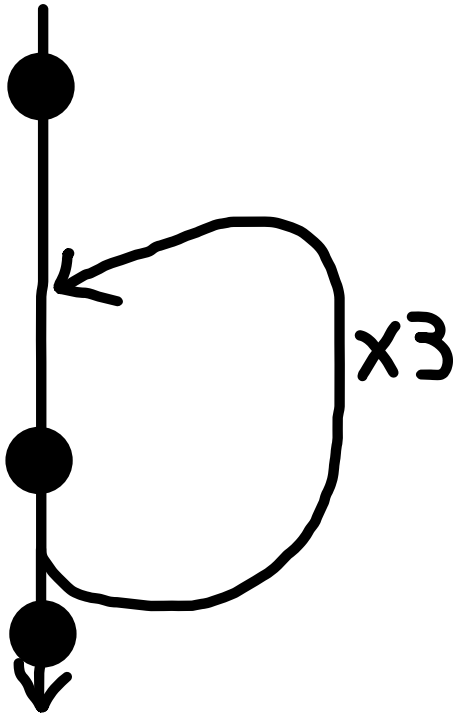
Count controlled loop

Stand

do 3 times

wave

Sit



Count controlled loop

```
stand
loop 4 times
    wave
    bow
sit
```

Can you act out the algorithm?

Count controlled loop

```
stand
loop 4 times
    wave
    bow
sit
```

stand
Wave
Bow
Wave
Bow
Wave
Bow
Wave
Bow
sit

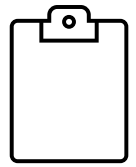
Did you carry out these actions?

Count controlled loop

```
stand
loop 4 times
    wave
    bow
sit
```

stand
Wave
Bow
Wave
Bow
Wave
Bow
Wave
Bow
sit

What actions are **inside** the loop?

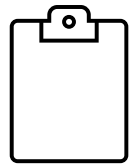


Count controlled loop

```
stand
loop 4 times
    wave
    bow
sit
```

stand
Wave
Bow
Wave
Bow
Wave
Bow
Wave
Bow
sit

What actions are inside the loop?

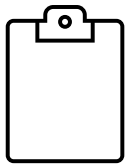


Count controlled loop

```
stand
loop 4 times
    wave
    bow
sit
```

stand
Wave
Bow
Wave
Bow
Wave
Bow
Wave
Bow
sit

What actions are **outside** the loop?

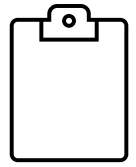


Count controlled loop

```
stand
loop 4 times
    wave
    bow
sit
```

stand
Wave
Bow
Wave
Bow
Wave
Bow
Wave
Bow
sit

What actions are outside the loop?



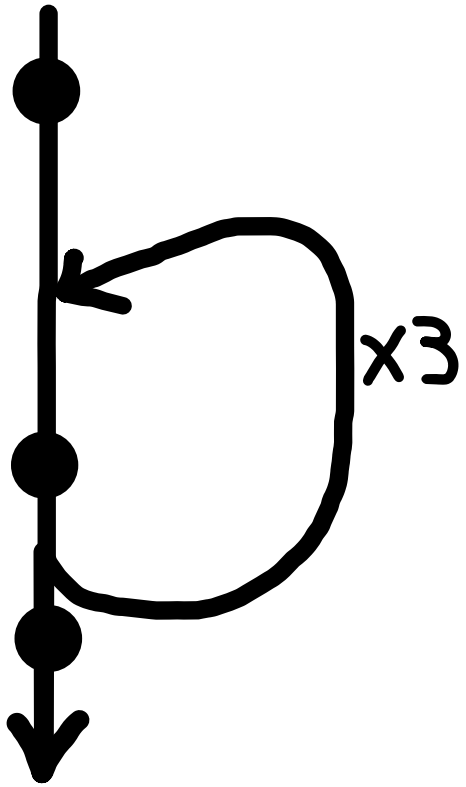
Count controlled loop

Stand

do 3 times

wave

Sit



Flow of control reminder

Count controlled loop

```
stand
loop 4 times
    wave
    bow
sit
```

Draw the flow of control

Count controlled loop

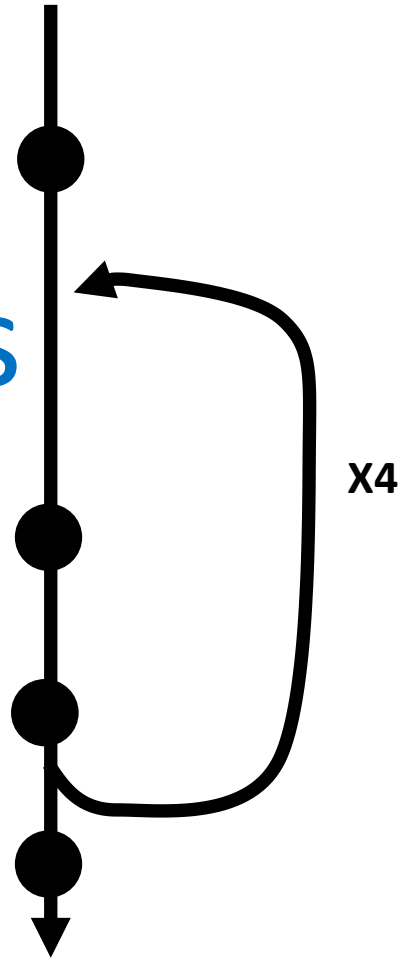
stand

loop 4 times

wave

bow

sit



Count controlled loop

```
stand
loop 2 times
        say pig
Sit
Do 4 times
        wave
        grin
Say end
```

How many loop structures are there?

Count controlled loop

stand

loop 2 times

    say pig

Sit

Do 4 times

    wave

    grin

Say end

How many loop structures are there?

2 loop structures

Count controlled loop

```
stand
loop 2 times
    say pig
Sit
Do 4 times
    wave
    grin
Say end
```

How many repeats in total?

Count controlled loop

stand

loop 2 times

    say pig

Sit

Do 4 times

    wave

    grin

Say end

How many repeats in total?

6 repeats

2 + 4 = 6

Count controlled loop

```
stand
loop 2 times
        say pig
Sit
Do 4 times
        wave
        grin
Say end
```

Draw the flow of control

Count controlled loop

stand

loop 2 times

say pig

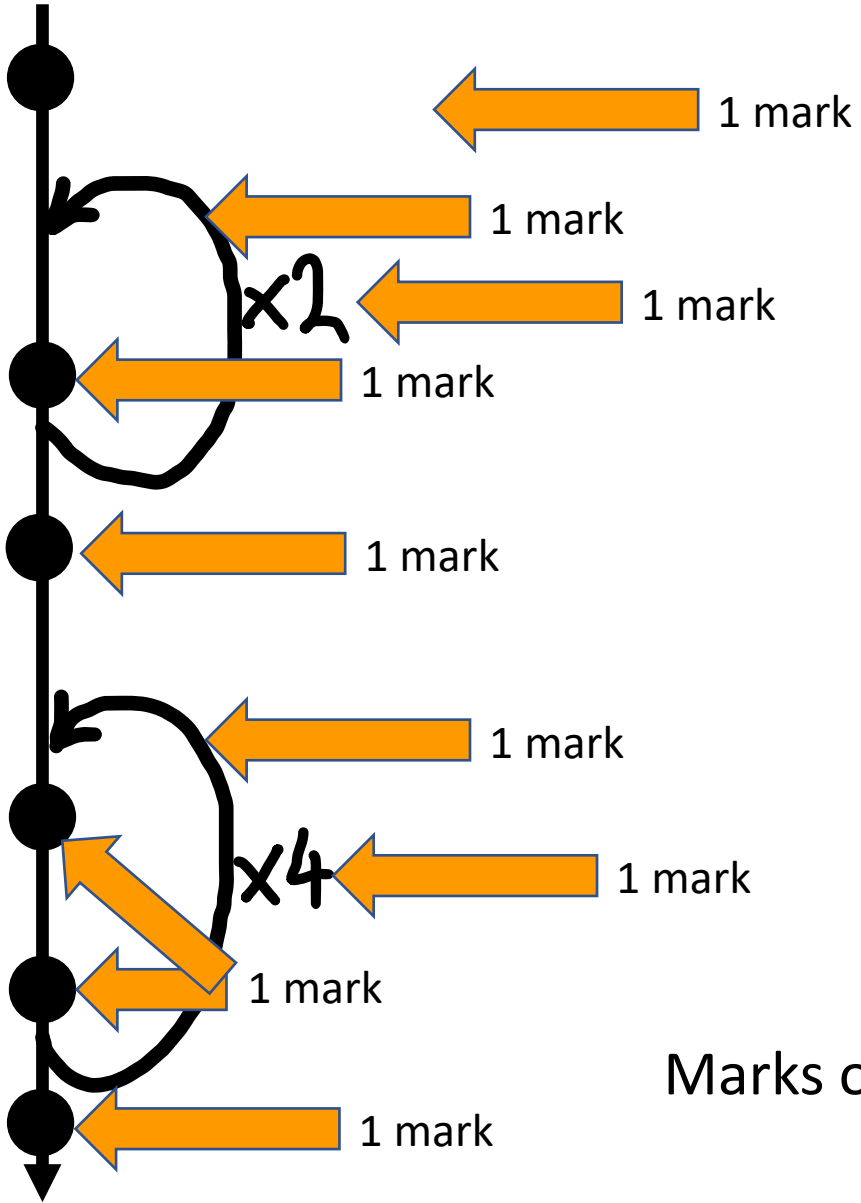
Sit

Do 4 times

wave

grin

Say end



Marks out of 9

Count controlled loop

```
smile
loop 3 times
        stand
        sit
frown
```

Now write your own everyday algorithm that uses count controlled loops

Can your neighbour act it out?

One mark if it makes sense
One mark if each action is on a new line
One mark if you indent the actions

Count controlled loop

bow
jump
bow
jump
bow
jump

Can you turn this sequence into a count controlled loop?

Count controlled loop

bow
jump
bow
jump
bow
jump

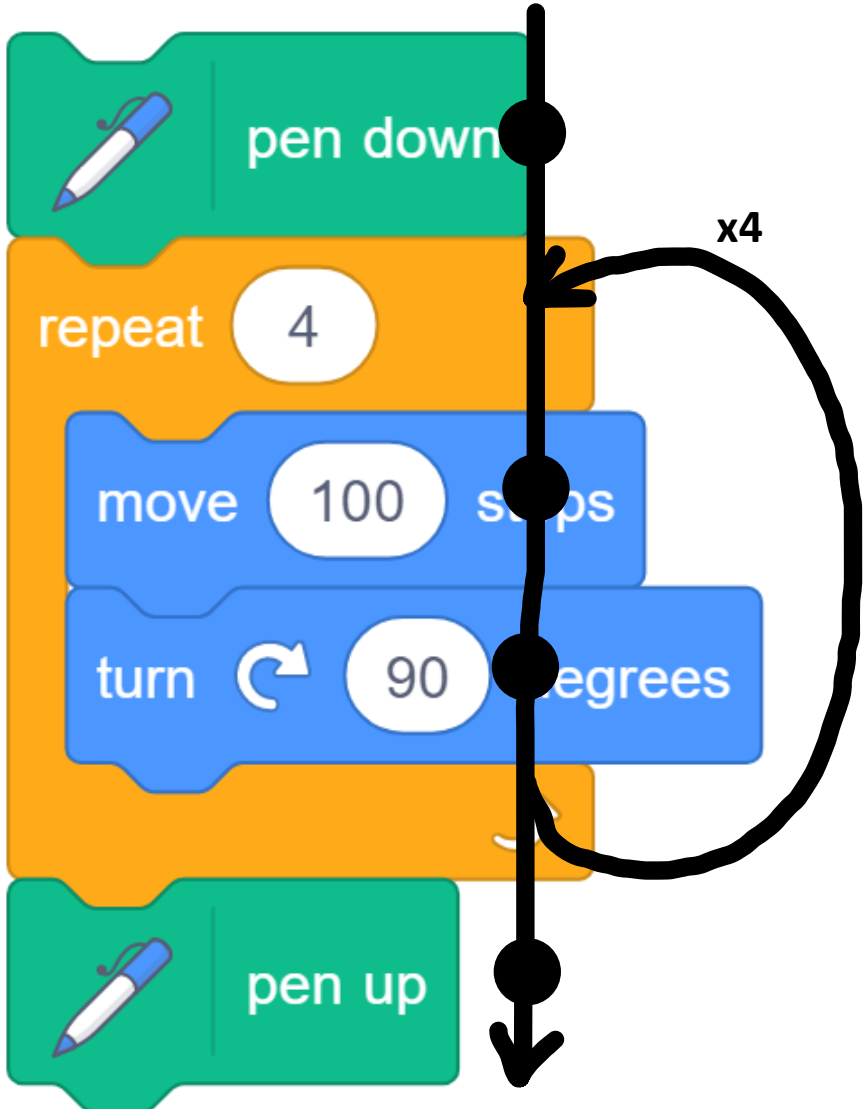
Did you turn this into this?

do 3 times
    bow
    jump

or

loop 3 times
    bow
    jump

Count controlled loop



Count controlled loop

A loop is a set of instructions that are repeated

A count-controlled-loop

- Can replace a sequence where there is a pattern.
- Is controlled by the number
- Ends after the number of repeats are complete
- Is called a repeat loop in Scratch programming
- Has a flow of control (order that commands are executed in)
- Can be used in an algorithm or in programming

Terms of use

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Further book resources can be found here

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