Sequence & Variables

PROGRAMMING ESSENTIALS IN SCRATCH

KNOWING WHAT YOU KNOW

Go to: https://joinmyquiz.com
Wait for the join code:

Write your

Vietnamese name and Grade Level

Variables

In this lesson, you will:

❖ Define what a variable is

❖ Recognise that computers follow the control flow of input/process/output

❖ Predict the outcome of a simple sequence that includes variables

❖ Trace the values of variables within a sequence

❖ Make a sequence that includes a variable

Think you brains out

# What is programming ?

What is sequence?

Programming
is how *you* get computers to solve problems

There are two key phases that are important here:

You: Without the programmer (you), the computer is useless. It does what you tell it to do.

Solve problems: Computers are tools. They are complex tools, admittedly, but they are not mysterious or magical: they exist to automate tasks.
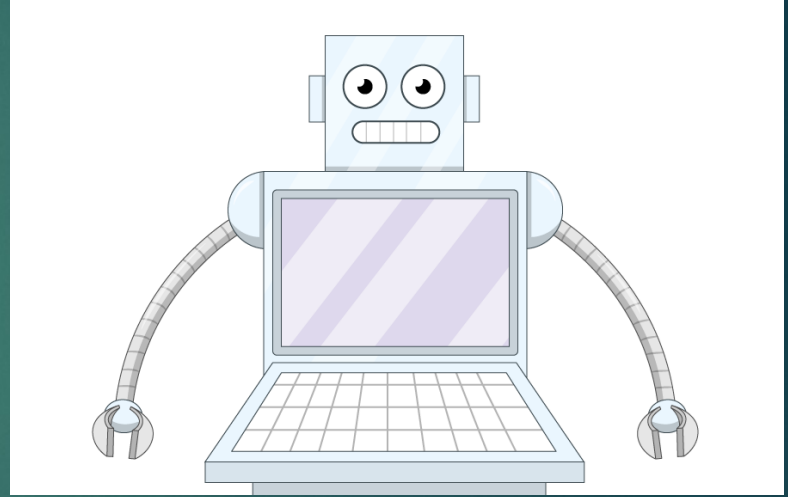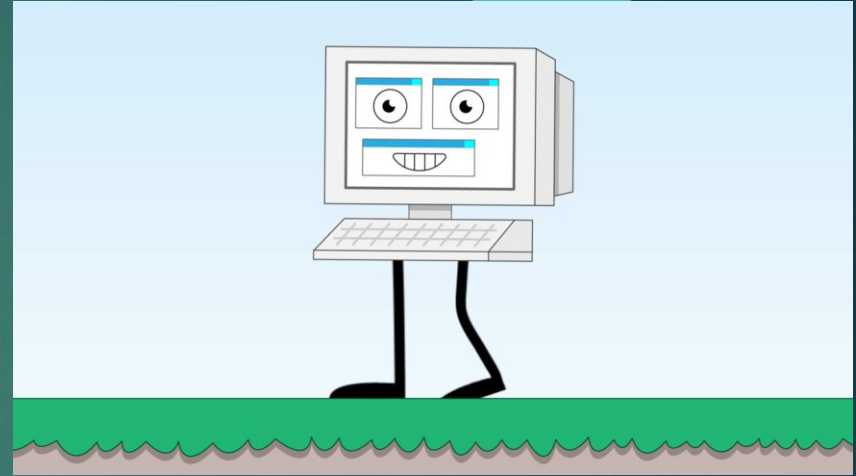
Three key concepts

There are three key programming concepts:

Sequence: Running instructions in order

Selection: Making choices

Iteration: Doing the same thing more than once

Variables

A <u>variable</u> is a name that refers to data being stored by the computer

Can variables store more than one item of data at the same time?

Think/pair/share

Variables

a = 5   b = 7

What is the value of y

if y = a + b
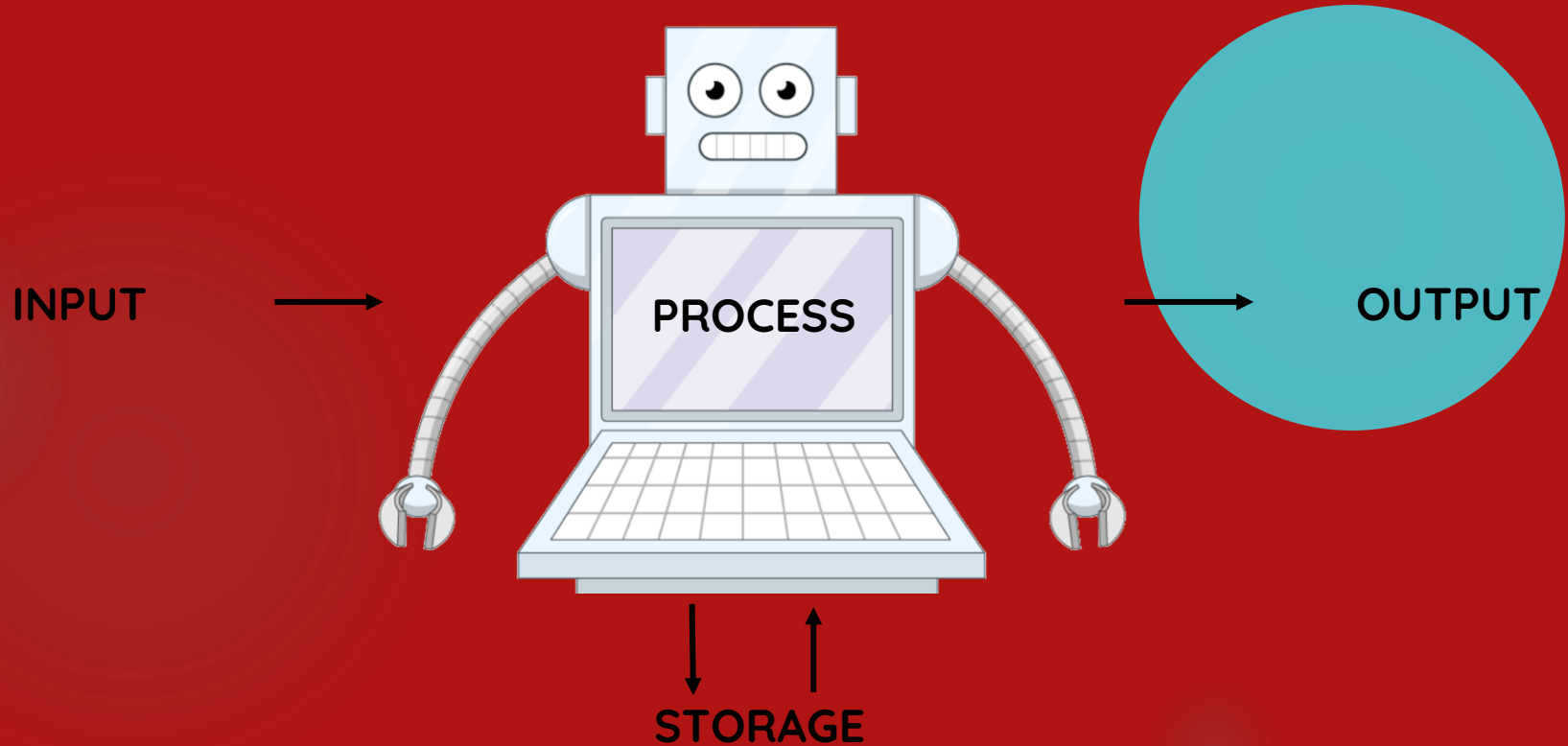
Variables

fruits = "banana", "jackfruit", "mango", "papaya", "plum"
vegetable = "carrots", "beans","tomato","onions"

Can you tell what are the contents of the variable fruits ?

Can you tell what are the contents of the variable vegetables?

Input — process — output

INPUT

PROCESS

OUTPUT

STORAGE

Meet Big Ed

Big Ed is your friendly chatbot.

Your task is to work in pairs to answer the questions on the activity sheet. You'll find out what the code does and have the chance to experiment with it.

Start by opening the Scratch program.

ncce.io/biged1

PREDICT

With a partner, spend time reading the code on the right. Predict what you think will happen.

Run the Scratch code from the link provided.

- Were your predictions correct?
- Did anything surprise you about the code?
- Did you miss anything out?

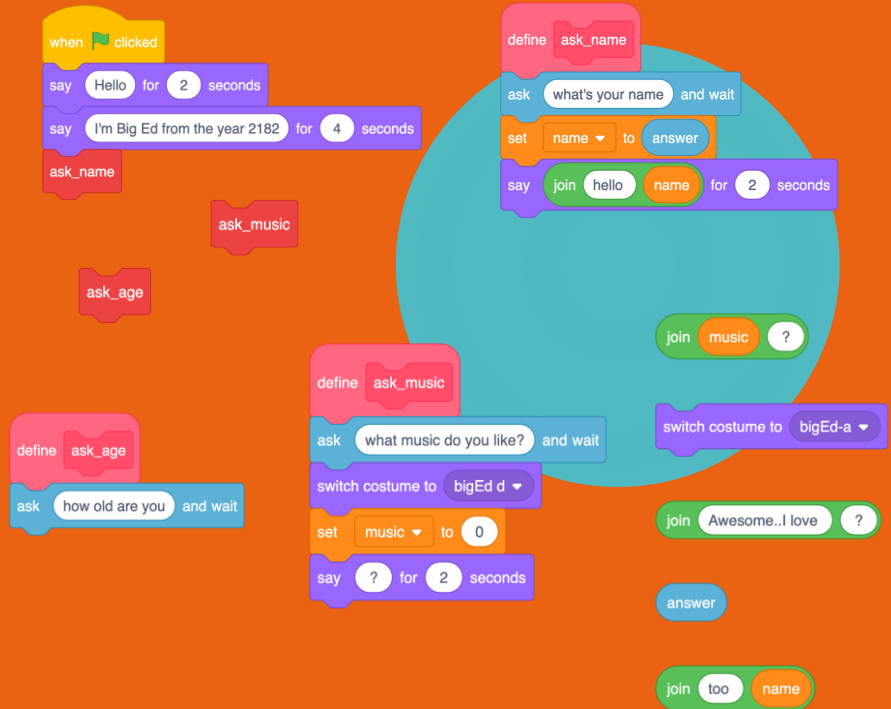ncce.io/biged1

Worksheet: INVESTIGATE and MODIFY

Continue with the worksheet.

Work in pairs, but complete your own worksheet.

Follow the instructions and investigate how the code works.

Move through the tasks independently.

Don't wait for your teacher to instruct you to move to the next section.

ncce.io/biged1

INVESTIGATE: Answers

How do the following two blocks relate to each other?

When your program reaches the ask_name block, it **calls** the **subroutine** 'define ask_name'.

'define ask_name' is a **subroutine.**

INVESTIGATE: Answers

What has this changed about the program when you run it?

Why do you think this is?

Big Ed will now only say "Hello".

As the question has not been asked, there is no 'answer'.

The line 'set name to answer' will now give name an empty value.

INVESTIGATE: Answers

Below 'define ask_name', there are two variables being used.

What are their names?

1. **Answer**
2. **Name**

INVESTIGATE: Answers

Why do you think it only says "Hello" and not "Hello" and the name you entered?

What can you learn from this?

It is because 'name' is being linked to 'answer' before the question is asked.

You must always set the value of a **variable** before using it.
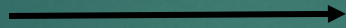
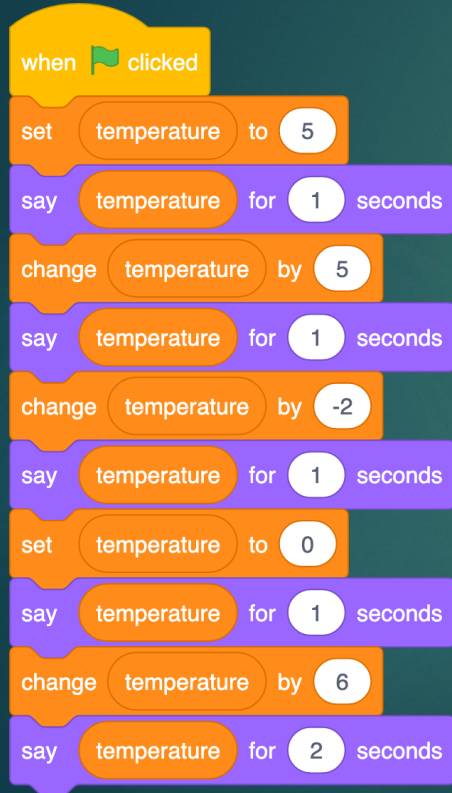# Trace the score variable: What will Big Ed say?

Big Ed has just arrived on a new planet and he's measuring the temperature of his new environment.

Use the activity sheet to trace (keep track of) the value of the temperature variable on each line that it is referenced.
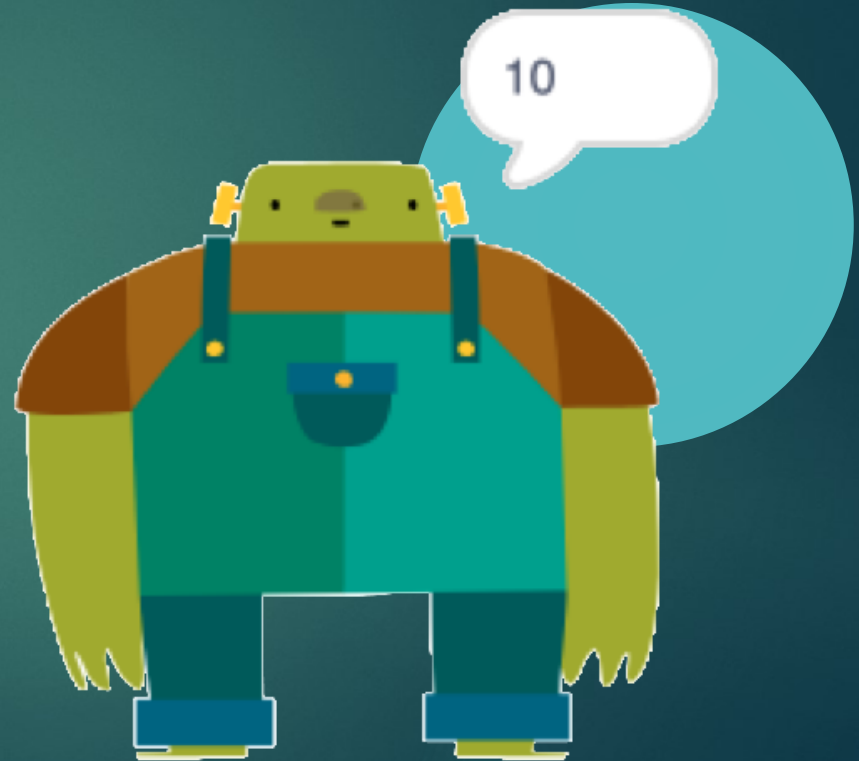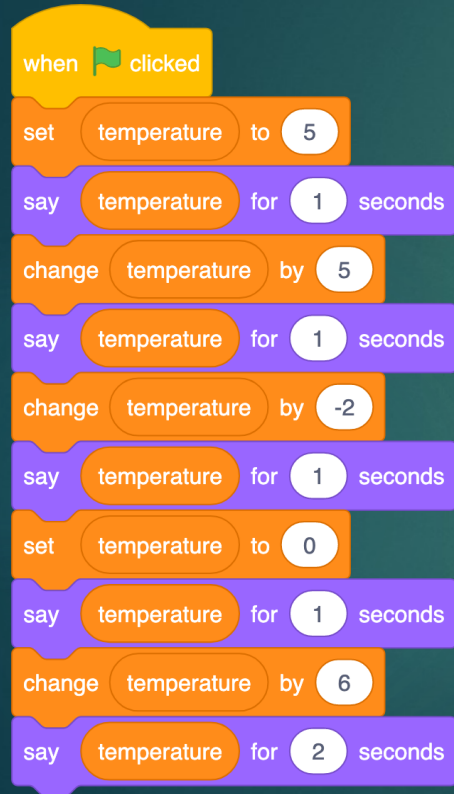
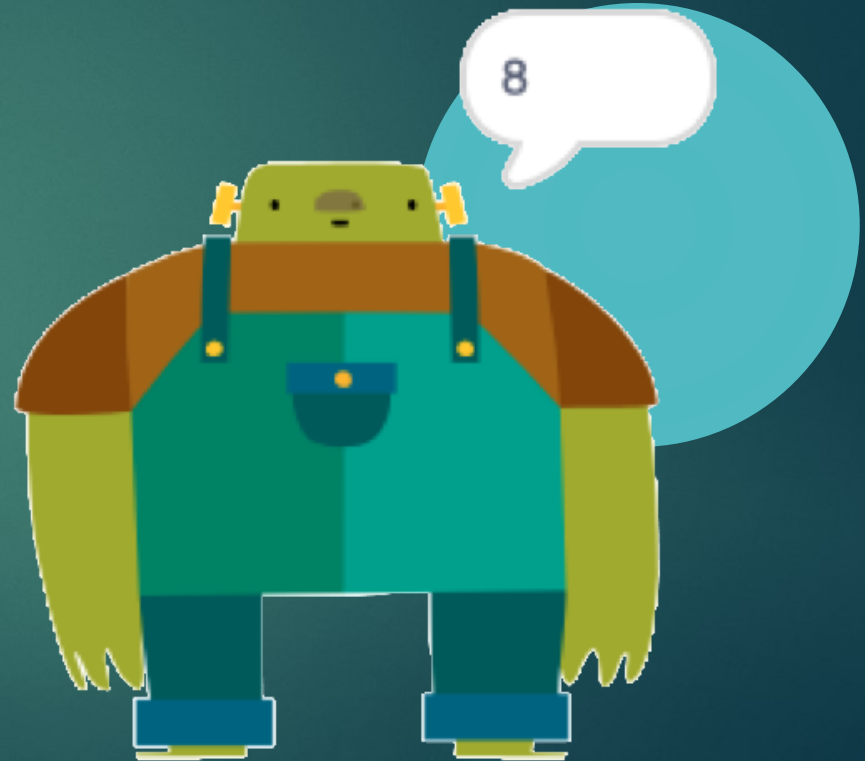Fill in your activity sheet and write down what Ed will say on each line.
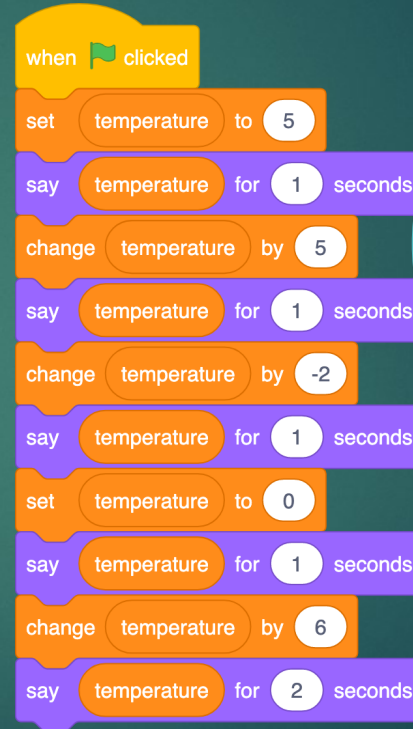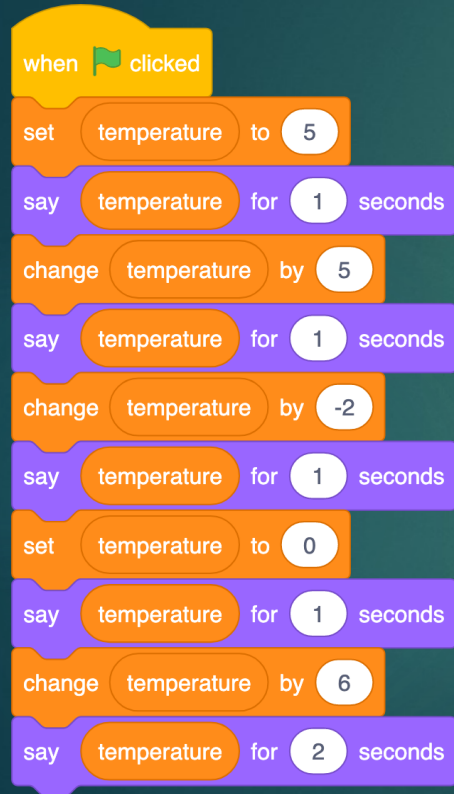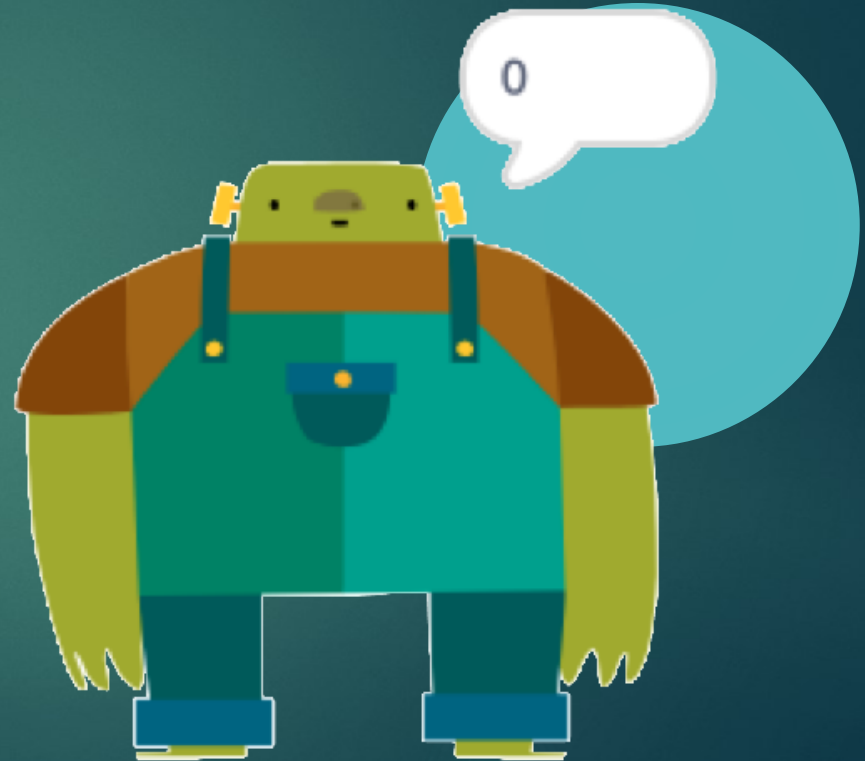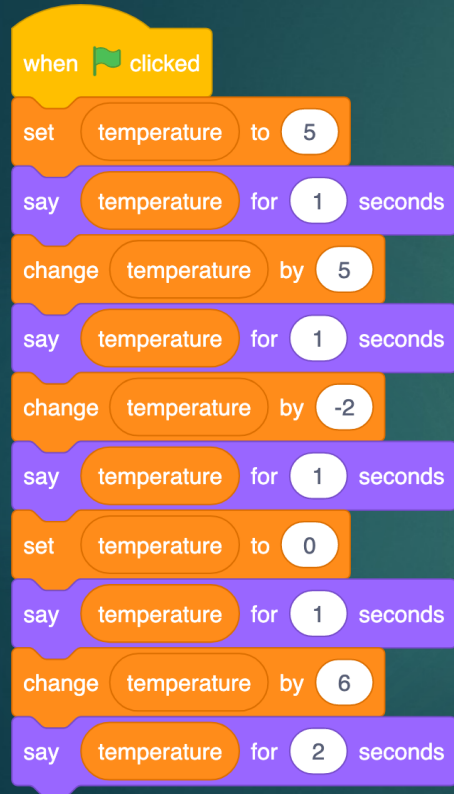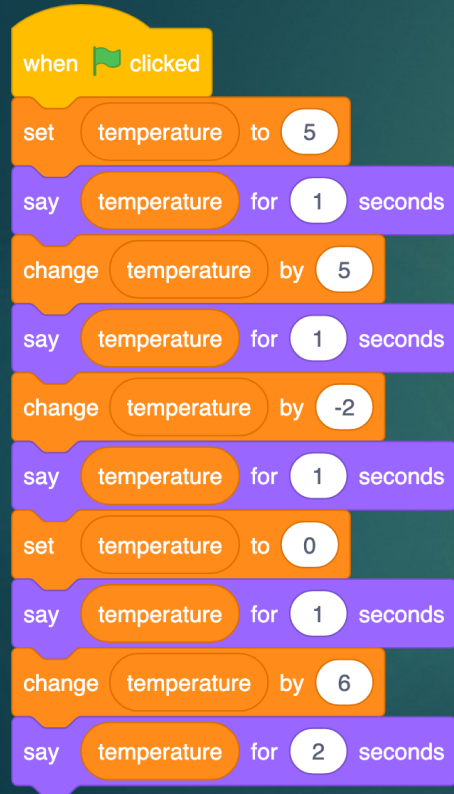
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```
when 🚩 clicked
set temperature to 5
say temperature for 1 seconds
change temperature by 5
say temperature for 1 seconds
change temperature by -2
say temperature for 1 seconds
set temperature to 0
say temperature for 1 seconds
change temperature by 6
say temperature for 2 seconds
```

Next lesson

In this lesson, you…

- Defined a variable
- Recognised that computers follow the control flow of input/process/output
- Predicted the outcome of a simple sequence that includes variables
- Traced a variable within a sequence

Next lesson, you will…

Learn about how to control the flow of a sequence using **selection**

KNOWING WHAT YOU LEARNED

Progress Test
Go to: https://joinmyquiz.com
Wait for the join code:

_____

Write your

Vietnamese name and Grade Level

FEEDBACK AND SUPPORT

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THANK YOU