# Lesson 1

Introduction to Coding

code for schools

# Learning objectives

By the end of this lesson:

- I can access the course resources, and use them
- I can play a text adventure game
- I can understand what a programming language is
- I can write my first program in Python!
- I can play a graphical game and explore how to modify it

# Introduction Worksheet & Scavenger Hunt

- Complete the worksheet below by yourself, or together as a class.
- When you're done, share what you wrote with the person next to you.
- Review as a class.

Complete worksheet here

# Have you ever wanted to...

- Create an **app** or **website**?
- Create amazing new photo and video **filters**?
- **Cure cancer** or help make **scientific discoveries**?
- Make smart **robots** or **self-driving vehicles**?
- Make **video games**?



# What You Can Produce With Coding

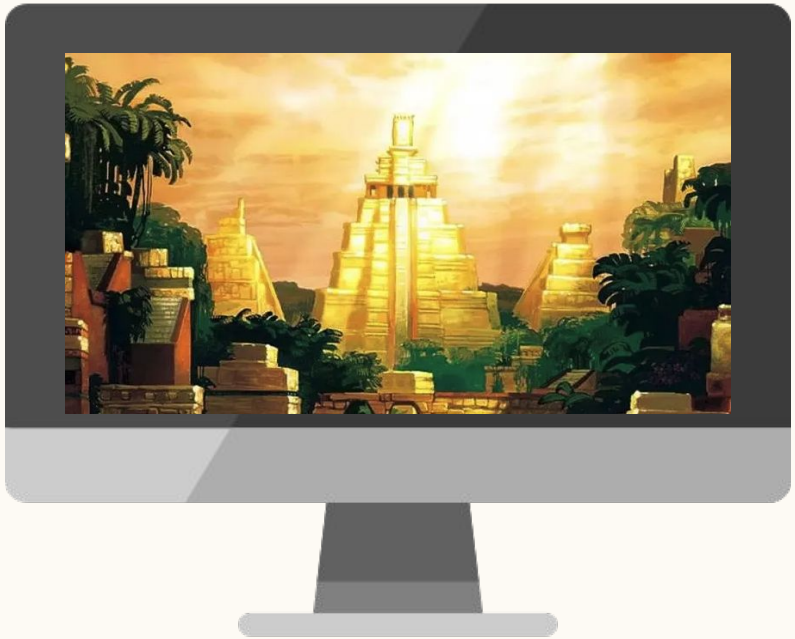
- Software that drives cars
- Apps like Instagram, Snapchat, and TikTok
- Online shopping apps
- Study tools
- Hairstyling and fashion simulations
- Games
- Smart robots
- ... and loads more!



# Skills that you will develop as you learn how to code

- **Analysing** and **solving complex problems**
- Being **confident** at **using** and **developing computer applications**
- Being **resourceful**, **investigative**, and **creative**
- Making **maths come alive**
- Improving your **personal** and **technical communication skills**
- Working in **teams**
- Building **resilience** with learning and using new skills

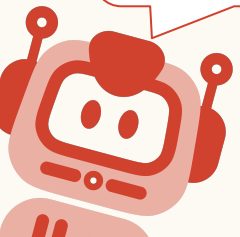
# Activity 1.01: City of Gold!



**Helpful Hints**

- On the editor, click on the **run** button to play the game!

You'll make a game like this in your final assignment!



[Click here to play a Text Based Adventure Game]

# How computers work

- Computers can operate **very fast**
- However, they need to be told what to do
  - They need instructions that are **step-by-step**
  - They do exactly as they are told and they're **very strict with spelling**!
- When we give instructions to a computer, we must also communicate in a **language that the computer understands**
- There are **many languages** that have been invented for computers
- What computer "programming languages" do you know?

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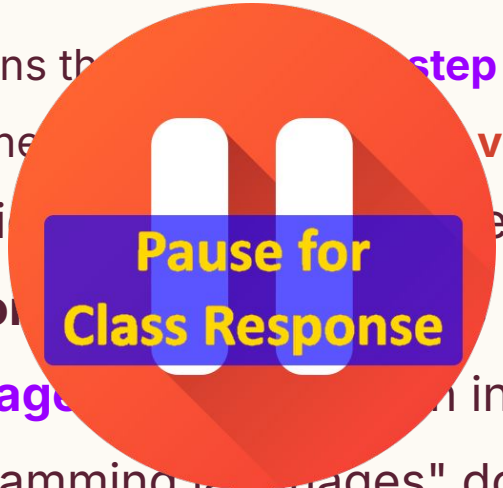


# Using the Python programming language

- We are going to use the **Python** programming language in this course
- Python looks a bit like English and is quite readable
- There are **lots of code already written** in Python that you can **borrow** in your programs
- **Python is a very popular programming language** in software engineering and science
  - It is used in companies such as Amazon, Google, Facebook, and Microsoft, as well as many schools and universities around the world!
- It does require **typing** though. It may be trickier to get started than some other languages (such as Scratch), but soon enough, you will be able to do things much more quickly!

# Let’s Write Our First Program in Python!

# Your First Python Program!


Link to Accompanying Slides
(PDF, powerpoint)

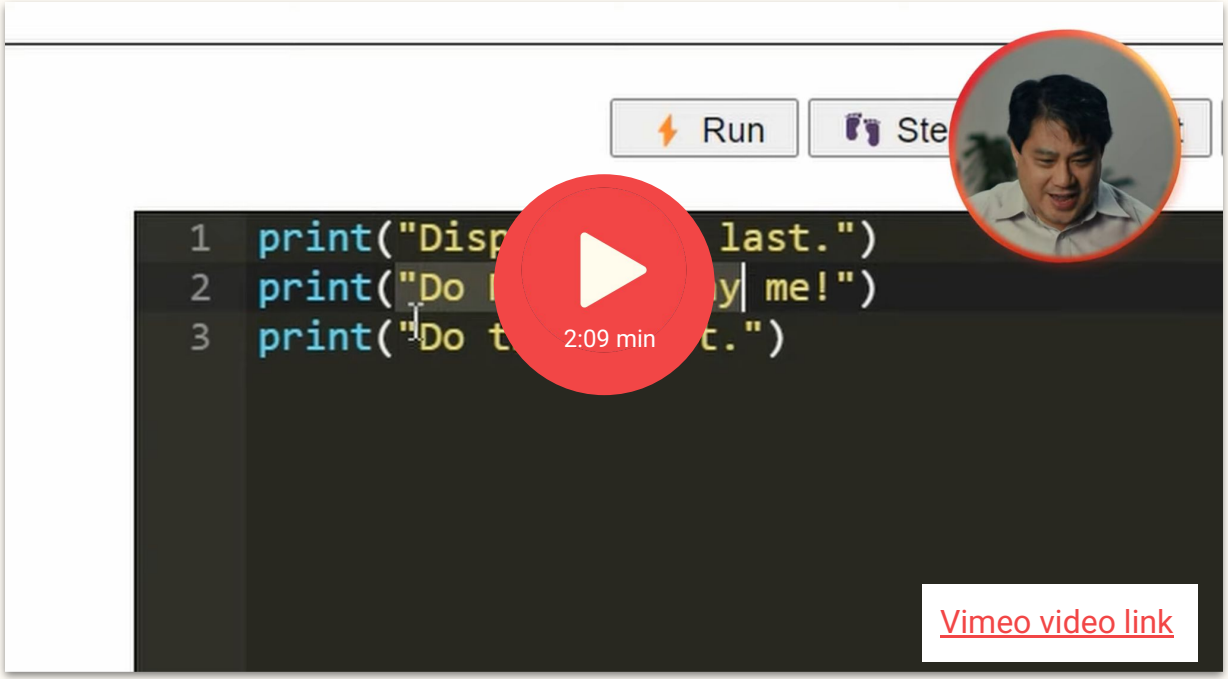
# Activity 1.02: Hello World!

**Activity 01.02**
Hello, World!

**Helpful Hints**

- This is your very first program!
- You'll need to use: `print()`

# One Line At a Time



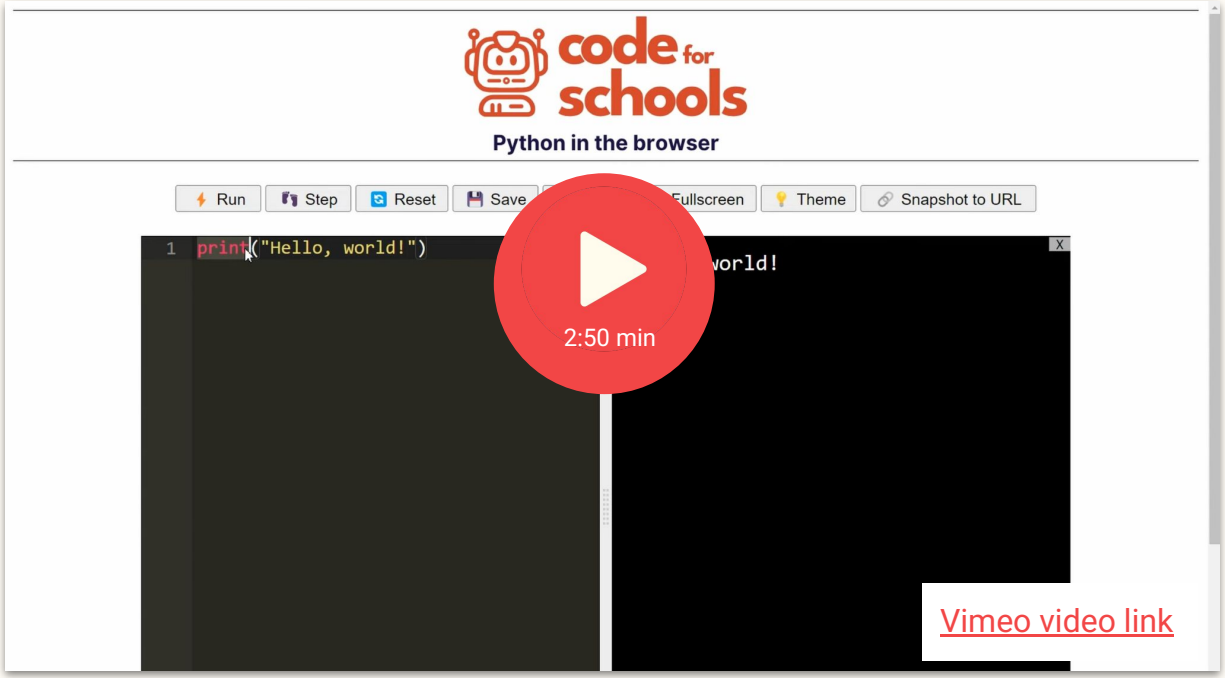

Link to Accompanying Slides
(PDF, powerpoint)

# Activity 1.03: A Conversation in Python!

**Activity 01.03**

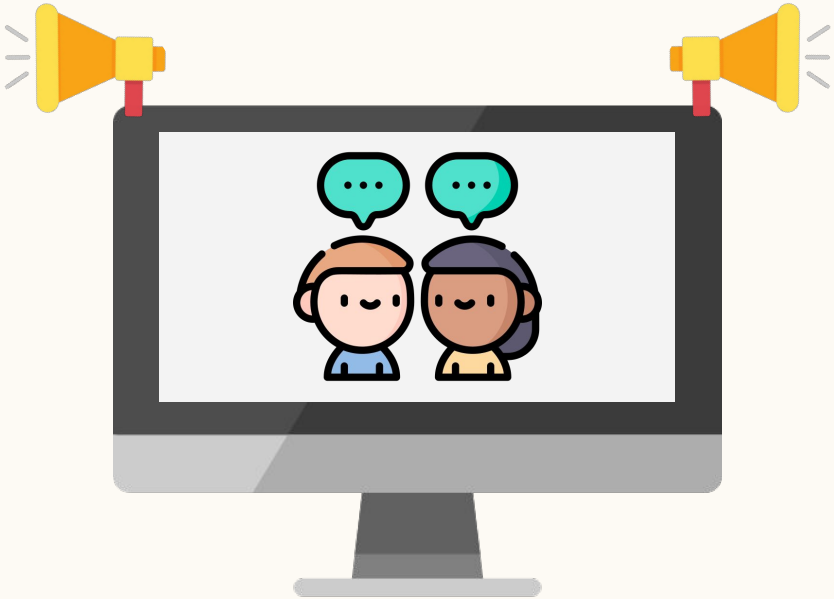
A Conversation in Python

# Another Function: say




Link to Accompanying Slides
(PDF, powerpoint)

# Activity 1.04: A Spoken Conversation in Python!



**Activity 01.04**

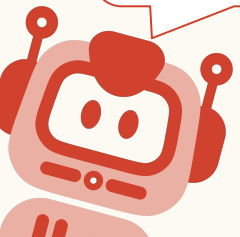
A Spoken Conversation in Python

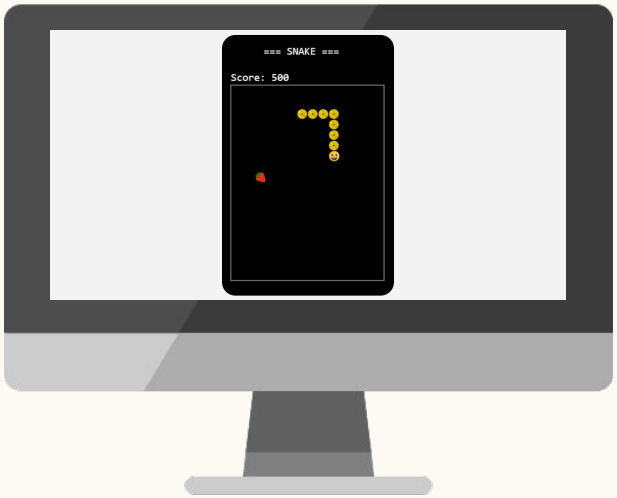
**Helpful Hints**

- You'll need to use: `say()`

# Extension Activity 1.05: Playing Snake!

Snake is a classic game that you can make with Python!






**Extension Activity 01.04**

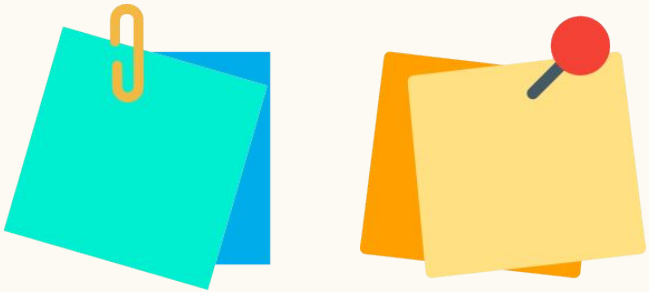
[Play Snake here!]

**Helpful Hints**

Need some help?
[Watch the tutorial video.]

# Reflection: Exit pass

- What is one new thing you learnt today?
- Write it on a sticky note and stick it on the board before you leave the classroom



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