Python Programming

Scenario: Graphical coding tools like Scratch and Tynker are nice, but are not how engineers typically program. Programming involves typing, which involves knowing **what** to type (and in our case, sometimes involves typing things incorrectly, too). Python is a professional programming language that adults use to create software. But, it is a straightforward language and which makes it a good first programming language for kids or adults!

We will use Python to create fun programs, starting with a fill-in-the-blank story (like a MadLibs). Then, you can move on to a Pig Latin translator, a choose-your-own-adventure game, or many more things.

What You Need:

- **Computer**
- **Web Browser** (Safari, Chrome, Firefox, etc.)
- **Internet Connection** with access to https://www.pythonroom.com

Notes for Grown-ups:

- Access is free
- You will need to create an account
- This project comes from a company called Hulaloop, and uses Hulaloop's Python learning environment ("Pythonroom")
- The Pythonroom software will guide kids through the programming. You do not need to be an expert to help kids learn programming

This set of projects are provided by pythonroom, a product of Hulaloop. You can find out more about them at hulaloop.io.

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1. Login and create "Hello World"

> **Nugget O' Knowledge:** Each programming language has a **syntax**. A syntax is a set of special words and rules for how to write programs.

1. Go to https://pythonroom.com and click the "get started" button at the top.

2. Enter an identifying name, email, and a password, then click the "create account" button.

3. Read the green pop-up box and follow the directions.

4. Click the create file button on the top left of the screen to make a Python file.

5. Rename the file, then double-click on the file name to open it.

6. Click on the green play button to run the code that you see on the screen.

7. Click on your name at the bottom left hand corner of the screen to go back to your dashboard.

8. After you create your account and first program, you will be asked, "Who are you teaching?". If you are teacher, continue to Section 2. Otherwise, continue to Section 3.

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2. Classroom Setup

1. After you create your account and first program, you will be asked whether you are a teacher or an individual learner.

2. If you want to set up your students in a class, and use the classroom management features, select "my students."

3. Give your classroom a unique name.

4. To add a student, type in his or her name and press "enter" on your keyboard. You can also copy a roster from a CSV file and paste it into the "add student" box.

5. Follow the rest of the tour to learn about Pythonroom's classroom management features.

6. Click on the "learn" button on the right side of your dashboard to access the Python book.

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3. Create MadLibs-like Program

1. Click on Lesson 1.1, "Displaying Output". Go through the entire lesson until you feel comfortable with the material. It is ok to do the lesson multiple times!

2. Continue onto Lesson 1.2 "Variables". Once you have completed and understood this lesson, move to Lesson 1.3 "Mad Libs".

3. Complete this lesson to create your own Mad Libs program!

4. Continue working through the Pythonoom curriculum to create many interesting programs including:

- Fibonacci
- Rock, paper, scissors
- Choose your own adventure game
- Pig Latin translator
- Secret code generator
- Make graphics with the turtle library
- Flight map

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