Lesson 1 Sequencing

Introduction

In this lesson, learners will be introduced to a Python IDE of your choice. They will learn about the function of an IDE and why programmers use these to write programs. Learners will be given some simple code to predict, run, investigate, and modify. Whilst they take their first steps in Python programming, they will also learn about common errors and error types.

Learning objectives

- Describe the tools an IDE provides (editors, error diagnostics, runtime environment, translators)
- Use subroutines in programs
- Define a sequence as instructions performed in order, with each executed in turn
- Predict the outcome of a sequence and modify it
- Interpret error messages; define error types and identify them in programs (logic, syntax)

Key vocabulary

IDE, translator, interpreter, subroutine, sequence, execute, error messages, syntax error, logic error, syntax

Preparation

Choose your IDE

We recommend that you use Mu as the IDE for Python because it has a friendly split-screen layout and lots of helpful features for learners. You can download Mu here: https://codewith.mu/en/download

Another option is to set up online accounts with repl.it. The site allows you to adjust the font size and the background colour, which makes it accessible for users. It also offers the split-screen element where learners can see their code and output in one window.

All programming code will be provided via repl and the worksheet.

Subject knowledge:

You should have:

- An understanding of IDEs and the functionality that they have to offer programmers
- The ability to create and use subroutines in Python
- An understanding of sequencing and how this is applied in programs
- An understanding of how commenting should be used in programming
- An understanding of the common error types (syntax, logic)

You will need:

- Slides
- A Python IDE for learners to access — Mu is the recommended IDE
- Teacher resource: Live coding demonstration
- Activities:
    - Your first Python code: A2 worksheet
    - Twinkle, twinkle, little sequence: A3 worksheet and solutions

Optional:

- Vocabulary sheet

- Twinkle, twinkle, Python file (https://replit.com/@awade05/twinkletwinkle#main.py)
- Twinkle complete (https://replit.com/@awade05/twinklecomplete#main.py)

Assessment opportunities

The starter activity allows you to check what learners remembered about translators from the last lesson. Use this time to recap it with your learners.

The ‘Introducing your IDE’ activity provides an opportunity to see how quickly learners can debug their programs. It also asks for definitions of syntax and logic errors, which can be checked against the vocabulary sheet by peers or you.

The ‘Twinkle, twinkle, little sequence’ activity is a PRIMM activity. Model answers have been provided for this worksheet if you wish to use them for self- or peer-assessment.