LESSON PLAN for y10-01-ct1

| **Lesson** | **Specification content** | **Details** | **Resources** |
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| CT1 | 1.2.1  1.2.3  1.2.5  6.1.5  6.2.1 | **Learning outcomes**   * define the term 'program’ * identify types of programs used every day * identify Python as a programming language * access an integrated development environment * load and run a Python program * change a Python program * save a Python program * use arithmetic operators and BIDMAS * layout code to be readable and maintainable * correct errors in programs * use variables in algorithms and programs.   **Lesson plan**   * Explain that computers are deterministic – they only do as they are instructed. Explain that programs are used to give these instructions. Ask the students to think about programs they use regularly. * What does a program look like? Explain that all programs are created by people using code. There are many ways to write code. Ask the students to name any programming languages they know. * Explain that the class will be learning to program using the language Python 3. Introduce the Integrated Development Environment (IDE) you want the students to use – explain that there are different ones, but that they will be using the one that you have chosen. Explain that IDEs provide tools to help write programs. Demonstrate using the interpreter for your IDE. Ask students to complete Activities 1 and 2. * Calculations: explain that the most common operation a person might want a computer to do is to perform a calculation. * Review the list of arithmetic operators. Make sure you show the translation of the more familiar mathematical symbols (×, ÷, yx) to the language syntax. If you have time, demonstrate each one (particularly the less familiar ones %, //, \*\*) and ask students to predict what each will produce. * Explain that Python uses BIDMAS. Tie this concept to what the class has learned in mathematics. Ask students to complete Activity 3. * Worked example: Surface of a cube. Point out the importance of using a sensible name to label information, explain that this is a ‘variable’. * Explain that the simple calculation that students have performed (sideLength × sideLength × 6) can be written as code in Python. Demonstrate this, if you have the time. Ask students to complete Activity 4. Allow plenty of time for this activity, as students are likely to make mistakes using their IDEs. * Wrap up.   **Homework**   * See homework document. | Lesson slides  Python IDE (e.g. PyCharm, Thonny, IDLE, etc.)  Lesson activities |