Your notes

KS3 Computing: revision notes

Programming (blocks and Python)

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Variables and data types

- A **variable** is a named store for data that can change: score = 0. A **constant** is a value that doesn't change.
- Data types: **integer** (a whole number, such as 7), **float** or real (a decimal, such as 2.5), **string** (text, in quotes, such as "Sam") and Boolean (True or False).
- Input and output in Python: name = input("What is your name? ") and print("Hello", name).
- input() always gives a **string**, so use int() to turn it into a whole number: age = int(input("How old are you? ")).

Selection and iteration

- Selection: if score >= 50: ... elif ... else: ... In Python, indentation shows which lines belong inside the if statement.
- A **FOR loop** repeats a set number of times: for i in range(5): repeats 5 times, with i going from 0 to 4.
- A **WHILE loop** repeats while a condition is true, for example until the user guesses the right answer.
- Block-based languages such as Scratch use the same ideas, with blocks instead of typed code.

Operators and lists

- Arithmetic: + – * /, // (whole-number division), % (remainder) and ** (power). 17 // 5 is 3 and 17 % 5 is 2.
- Comparison: == (equal to), != (not equal to), <, >, <= and >=. Logic: and, or, not.
- A **list** stores several items: fruits = ["apple", "pear"]. Positions (**indexes**) start at 0, so fruits[0] is "apple".

Errors and testing

- A **syntax error** breaks the rules of the language, such as a missing bracket, so the program won't run.
- A **logic error** lets the program run, but it gives the wrong result.
- Test with normal data (typical values), boundary data (at the edge of what is allowed) and invalid data (values that should be rejected).

Key terms

Variable	A named store for data that can change.
Constant	A value that doesn't change while a program runs.
Integer	A whole number.
Float	A number with a decimal point (also called real).
String	Text, written inside quotation marks.
Boolean	A value that is either True or False.
FOR loop	A loop that repeats a set number of times.
WHILE loop	A loop that repeats while a condition is true.
List	A data structure that stores several items in order.
Index	The position of an item in a list, starting at `0`.
Syntax error	A mistake that breaks the rules of the programming language.
Logic error	A mistake that makes a program give the wrong result.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. What is a variable?
2. Which data type stores text?
3. Which data type can only be True or False?
4. What does print() do in Python?
5. Why is int() used with input() in Python?
6. How many times does for i in range(5): repeat?
7. What does == mean in Python?
8. What does != mean in Python?

Answers

1. A named store for data that can change
2. String
3. Boolean
4. Displays output on the screen

Your notes

5. input() gives text, and int() turns it into a whole number
6. 5 times
7. Is equal to (comparing two values)
8. Not equal to

What to do next

Practise 15 questions on this topic

Try 4 exam questions, with mark schemes

Read the lesson, one step at a time

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