

Kit's Code-Cracking Challenge

Learning objective: To understand algorithms, debugging, and the logic behind computer programming.

Join Kit the fox in the digital forest! Read each question carefully and select the best answer to help Kit build a new app. Answer all 10 questions to earn your 'Junior Coder' badge.

Answer Key: 1.C, 2.True, 3.Debug, 4.B, 5.True, 6.Loop, 7.A, 8.False, 9.Sequence, 10.B. Explanations: An algorithm is a set of instructions. Debugging is removing errors. A loop repeats actions. A variable stores changing data.

Word bank: Algorithm · Debug · Sequence · Variable · Loop · Input · Output · Syntax

1. 1. What is the correct term for a precise set of instructions used to solve a problem? A) A glitch B) A system C) An algorithm* D) A hardware (1 mark)

2. 2. True or False: A 'bug' is a mistake in the code that prevents the program from running as expected. (1 mark)

3. 3. What do you call the process of finding and fixing errors in a computer program? (1 mark)

4. 4. Which of these is the best example of a 'loop' in a program? A) Telling a robot to stop B) Telling a robot to walk forward 10 steps, 5 times* C) Telling a robot to turn left once D) Clicking a button (1 mark)

5. 5. True or False: In coding, the 'sequence' of instructions is important because the computer executes them one by one in the order they are written. (1 mark)

6. 6. If you want a character in a game to jump every time the space bar is pressed, what structure would you use to repeat that action? (1 mark)

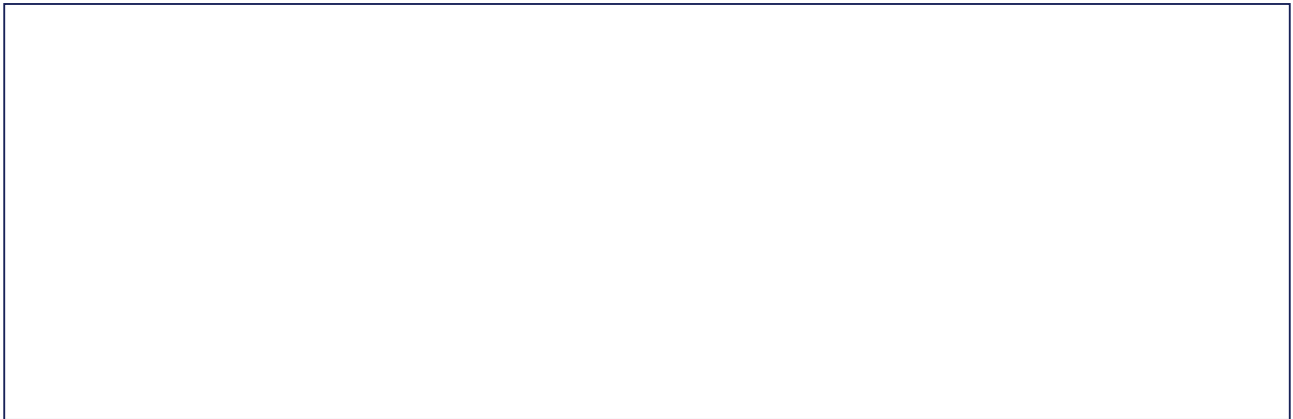
7. 7. Which of these acts as a container to store information that might change, such as a player's score? A) Variable* B) Loop C) Input D) Bug (1 mark)

8. 8. True or False: Computers are intelligent enough to fix their own logic mistakes without any human intervention. (1 mark)

9. 9. What is the specific word for the order in which a computer follows instructions? (1 mark)

10. 10. If an app takes your name as information and displays a welcome message, what is the 'welcome message'? A) The input B) The output* C) The bug D) The variable (1 mark)

Draw: Draw a flowchart that shows the steps for making a cup of tea. Use standard symbols: ovals for start/end, rectangles for actions, and diamonds for decisions (e.g., 'Is the kettle boiled?').



Extension challenge: 1. Explain why it is crucial for a programmer to test their code multiple times before releasing it to the public. 2. Compare and contrast an algorithm used for a computer program with a recipe used for baking a cake. 3. Justify your answer: Is it better to write a long, repetitive code or a short code using loops? Explain your reasoning. 4. What might happen if the sequence of instructions in an algorithm is changed? 5. Design a pseudocode for a digital alarm clock that rings at 7:00 AM. 6. If you were creating a game where a character collects coins, how would you use a variable to keep track of the total coins collected?