



Coding & Algorithms

Gold

These Gold questions require explaining and designing algorithms with genuine computational reasoning.

Name: _____ Date: _____

Section A: Algorithm Design

1. Design a step-by-step algorithm for making a cup of tea, including at least 6 clear steps.

2. Explain why algorithms need to be precise and unambiguous, using an example of what could go wrong if they aren't.

3. A recipe algorithm produces the wrong result. Explain how you would go about finding and fixing the problem.

4. Explain the difference between an algorithm and the code that implements it.

5. Why might two different algorithms both correctly solve the same problem, but one be more efficient?

Section B: Loops & Logic

1. Design an algorithm using a loop that describes watering 10 plants, one at a time.

2. Explain why loops are essential for tasks that a computer needs to repeat thousands of times.

3. A loop is supposed to repeat 10 times but only repeats 9. Suggest what might have gone wrong.

4. Explain what a "condition" might do inside a loop (e.g. "keep going until you reach 100").

5. Why is understanding algorithms useful even for someone who never becomes a professional programmer?

