



Assignment UNIT 18 COMPUTATIONAL THINKING

Shahzaib Asim

S2312202

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Introduction

- This induction booklet has been created as part of a work experience programme in a technology company. The booklet is designed for students aged 14 to 15 who are new to computing. Its purpose is to introduce learners to computational thinking and explain how calculations are used in computing to solve problems.
- The booklet explains key ideas in a simple way so that new learners can understand how computers use numbers, logic, and step-by-step processes to complete tasks in real life.

Overview of the Work Experience Program

- The work experience program gives students the opportunity to learn about IT in a professional environment. During the program, learners are introduced to basic computing concepts, problem solving skills, and how technology is used in everyday systems.
- This experience helps students understand how computational thinking is used in real jobs within the IT industry.

Purpose of the Induction Booklet

- The purpose of this induction booklet is to help new learners understand how calculations are used in computing. It introduces important topics such as number systems, binary, hexadecimal, and power notation. These topics help learners build a strong foundation in computational thinking before moving on to more advanced subjects.

Importance of Computational Thinking in IT

- Computational thinking is important in IT because it helps people solve problems logically and clearly. It involves breaking problems into smaller steps and using calculations to reach correct solutions. In IT, computational thinking is used in programming, data processing, and system design.
- Without computational thinking, computers would not be able to perform tasks accurately.

Understanding and Applying Computational Calculations

Q. What is Computational Thinking?

A. Computational thinking is a way of thinking that helps us solve problems step by step, like a computer does. It is not only about computers or programming. It is about logical thinking, calculations, and clear steps to find correct answers. Computational thinking helps us understand a problem, break it into smaller parts, use calculations and rules and find an accurate solution.

Purpose and Computational Uses of Calculations in Solving Problems

- Khan Academy (n.d.) *Intro to computational thinking*. Available at: <https://www.khanacademy.org/computing/tesda-computational-thinking> (Accessed: 15 January 2026).
- Teach ICT *Computational thinking and problem solving*. Available at: https://www.teach-ict.com/v/ks3/sows/sow7/sow_menu.html (Accessed: 15 January 2026).

Explain the concept of rounding errors and how they arise during computational calculations.

A rounding error happens when a number is rounded made shorter or simpler because a computer cannot store every number exactly.

Computers have limited memory, so they often:

- round decimal numbers

- cut off extra digits

This small change can cause the final answer to be slightly wrong. That difference is called a rounding error.

Reference: This is basic knowledge taught in schools in CAIE OLEVEL Hodder education computer science book