LOG IN

COMPUTER SCIENCE

This book belongs to

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Uncle Babbage, is that a tablet computer?

Yes, Chip. This is a tablet computer. But, did you know that computers didn't always come in such small sizes?

1

Dear Teachers,

We, at Greycaps, are proud to present a textbook series with a difference.

THE HONEYCOMB SERIES

The honeybee is an intriguing creature in the animal kingdom. Its characteristics reflect being adaptable, agile, well-organised, creating synergy and working in harmony. Its sole purpose is to create each hexagonal cell in the honeycomb with perfection. The queen bee gathers the efforts of all the honeybees and motivates them to strive for perfection. We believe that this life skill can be borrowed from nature and applied into the school classroom.

Every teacher is like the queen bee – focussing on different capabilities of students and striving to attain harmony within the classroom.

Each student is like a honeybee – focussing on better learning and perfection.

This novel philosophy, initiated by Greycaps, is the cornerstone upon which we create engaging material to enhance the teaching and learning experience.

Team Greycaps

OBJECTIVES

Co-existence is the key

Group learning enhances better understanding among students as learning is a collective effort.

Integration of life skills into teaching methodologies

Learning takes place in every walk of life. Learning from life skills is perhaps, the most essential part of overall student development.

Bridging the gap

It becomes imperative to adopt various innovative teaching methods to bridge gaps among students as every child is unique and learning takes place at different levels.

2

Hello! My young friends,

Welcome to Log In – your grade 4 guide to everything about computers!

Ever wondered what goes on inside a computer? Have you ever thought of what the different buttons on a computer mean? Well, you've come to the right place!

Get ready for a fun filled adventure with me, where you will find exciting stories, amazing pictures and games. You can even try teaching in our **TEACH CHIP** section or if you feel like having some fun, enter the **ACTIVE ZONE**.

Join me on an adventure as I help Chip learn about computers, in a cool manner!

Happy Reading!

Uncle Babbage

Note: For **ACTIVE ZONE,** the software versions referred in this book are **WINDOWS 10** and **MICROSOFT OFFICE 365**.

CHIP

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LOG IN

COMPUTER SCIENCE

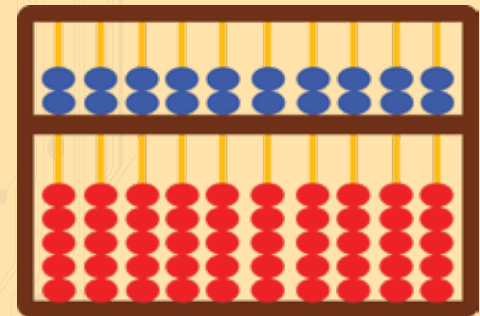Uncle Babbage, how was the computer invented?

In the olden days calculations took a long time. As it was done manually, it led to many mistakes. Hence, scientists started thinking of a new device, which led to the invention of computers.
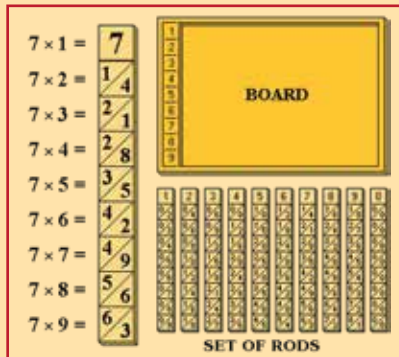
It took a long time to invent the computers. Let me tell you about the history and generation of computers.

History of Computers

The **Abacus** was invented in China over 500 years ago. It was used for basic calculations like addition and subtraction. It consists of a number of rods, with beads on them. The calculation is done by sliding the beads along the rods.
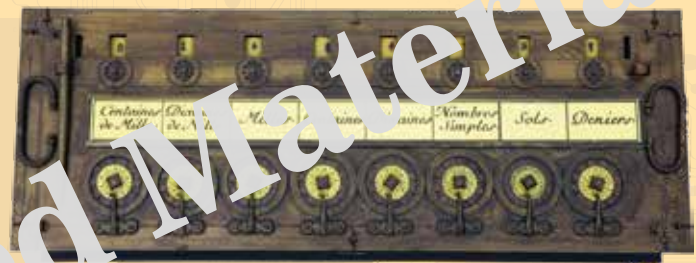

ABACUS

NAPIER'S BONES

Napier's Bones was invented by John Napier. It was used for multiplication and division of numbers. It consists of nine bones or sticks with numbers marked on them.

Blaise Pascal invented the **Pascaline Calculator** in 1642. It was used for addition and subtraction of numbers. It consists of a series of toothed wheels.
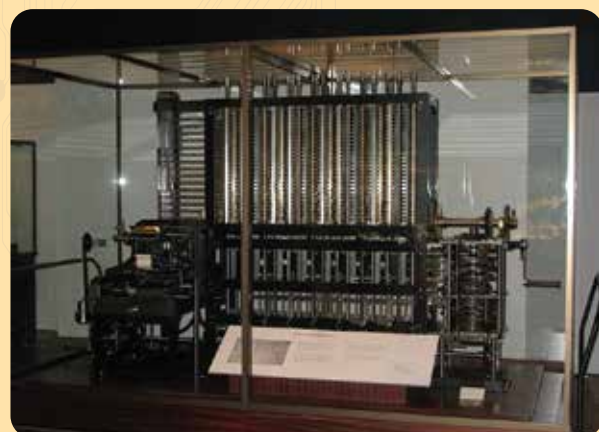

PASCALINE CALCULATOR

TABULATING MACHINE

Herman Hollerith invented the electrical device called the **Tabulating Machine,** used for storing and processing information, in 1890. This product became famous and led to the formation of a company, which we today know as IBM.

Charles Babbage, the father of the computer, invented a machine called the **Analytical Engine.** This machine could do addition, subtraction, multiplication, division and perform many other functions.

ANALYTICAL MACHINE

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Generations of computers

Computers are classified based on technology. The generations of computers are as follows -

VACUUM TUBES

First Generation Computers
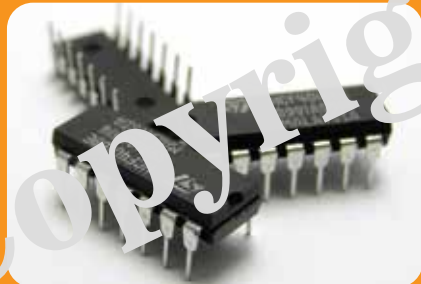
- First generation electronic computers used **vacuum tubes**.
- They generated a lot of heat.
- They consumed a lot of electricity.
- They were huge in size.

Second Generation Computers

- Second generation computers used **transistors**.
- They generated less heat as compared to first generation computers.
- They consumed less electricity as compared to first generation computers.
- They were smaller in size as compared to first generation computers.
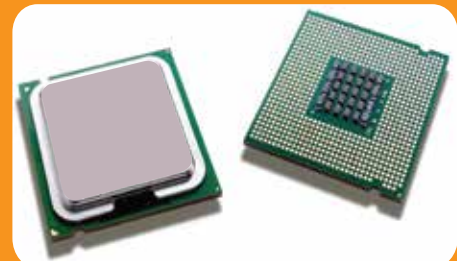- They were faster than first generation computers.

TRANSISTORS

INTEGRATED CIRCUITS

Third Generation Computers

- Third generation computers used **integrated circuits** (ICs). A single IC has many transistors.
- They generated less heat.
- They consumed lesser electricity.
- They were smaller in size and were faster.

Fourth Generation Computers

- Fourth generation computers use Very Large Scale Integrated (VLSI) circuits. These are thousands of integrated circuits built on a single chip called a **microprocessor**. Example - Intel Pentium.
- They are very small in size.
- They are portable and faster.

MICROPROCESSORS

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Fifth Generation Computers

⬡ These computers use **Artificial Intelligence (AI)**.

⬡ Artificial Intelligence is a new branch in computer science, which applies means and methods of making computers think like human beings. Example - Robotics.

⬡ It requires high storage, speed and efficiency.

Characteristics of a Computer

1) **Speed** - It can carry out a large number of calculations in a few seconds.

2) **Accuracy** - The calculated results are correct, if the input given to the computer is correct.

3) **Tireless** - Computers can work for hours without any break and without committing an error. The computer never gets tired.

4) **Multipurpose** - We can use computers to perform different types of functions at the same time.

5) **Storage** - Computers can store a large amount of data for future use.

Disadvantages of Computers

1) A computer does not think on its own. It works on the instructions given by the user.

2) Technology keeps changing. In order to keep up with these changes, constant updates need to be done.

3) We learn from our mistakes, but a computer does not have this ability.

4) Using the computer for a long time and sitting incorrectly can result in injuries to the back, neck, wrists, etc.

MOUSE TRAP

Lady Ada Augusta was an assistant to Charles Babbage. She is the world's first programmer. She was the one who came up with the idea of giving instructions to the computer in a step-by-step manner.

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Chip, do you remember learning about parts of a computer?

Yes, Uncle Babbage. They are monitor, system unit, keyboard, mouse, speakers and printer.

Chip, Let us learn about the different components of the system unit.

Components of the system unit

Switched Mode Power Supply (SMPS) is the main power supply to all parts of the system unit.

Motherboard is the main circuit board that connects all the computer's components together.

A CPU is often called the **Processor**. It is the heart and brain of the computer. The CPU is responsible for handling all instructions it receives from the hardware and software, running on the computer.

The more your computer functions, the more heat it generates. Hence, a common device used to cool the computer is the **Fan**.

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