

Class 1 (4th - 5th Graders)

Session 1: Introduction to Engineering & Physics Basics

- Overview of engineering and its real-world applications.
- Introduction to basic physics concepts (forces, motion, energy).
- Simple hands-on experiment using blocks to make structures that can hold the most weight.

Session 2: Understanding Electricity & Simple Circuits

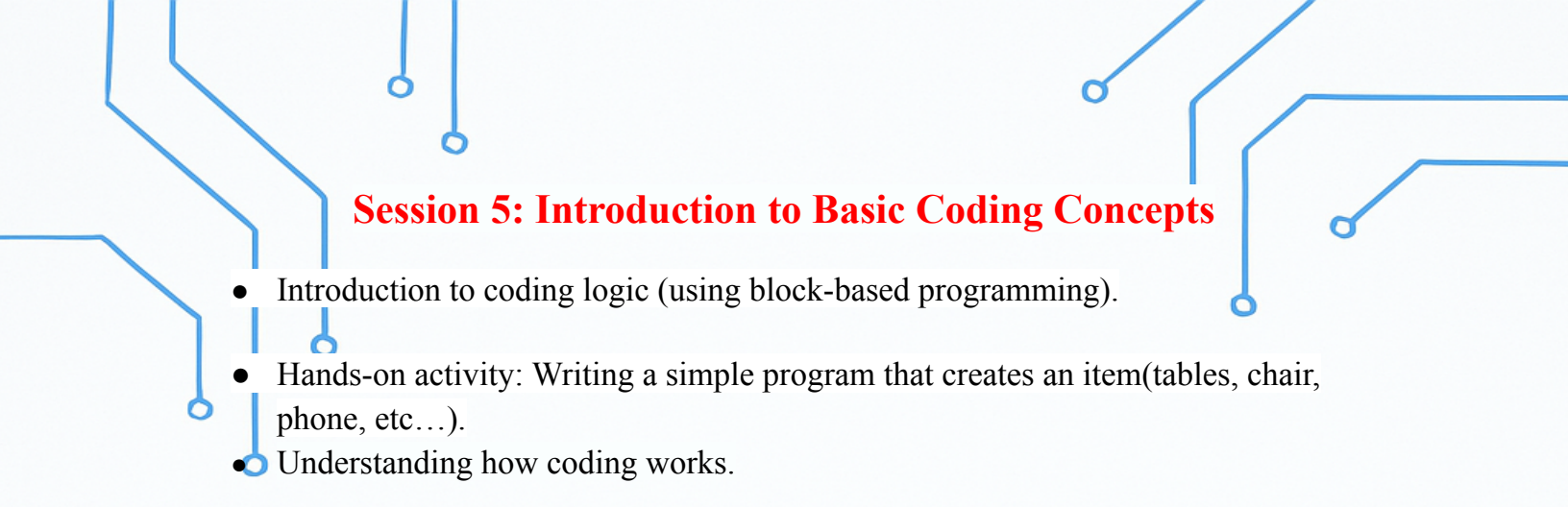
- Explanation of electricity and circuits.
- Hands-on activity: Building a basic circuit using batteries, wires, and LEDs.
- Introduction to conductors and insulators.

Session 3: Exploring Electronic Components

- Understanding resistors, capacitors, and switches.
- Hands-on activity: Experimenting with different circuit components.
- Learning how these elements control the flow of electricity.

Session 4: Building Light Circuits

- Explanation of series and parallel circuits.
- Hands-on activity: Creating a working parallel circuit. We'll build parallel circuits.
- Understanding the role of voltage and current in circuits.



Session 5: Introduction to Basic Coding Concepts

- Introduction to coding logic (using block-based programming).
- Hands-on activity: Writing a simple program that creates an item (tables, chair, phone, etc...).
- Understanding how coding works.

Session 6: Creating a Simple Machine

- Understanding factors that cause and modify motion.
- Hands-on activity: Building a simple motor-powered/ solar-powered machine that causes motion.
- Exploring the physics behind gears and energy conversions.

Session 7: Engineering Challenge & Showcase

- Applying learned concepts to a final project.
 - Students create their own small engineering project using the kit that solves a problem.
 - Review of projects.
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