



EARLY ROBOTICS - CUBELETS

INTRODUCTION

Robots, which were once seen only in fantasy and science fiction movies and literature, have become commonplace in today's world. Robotics is one of the fastest growing fields in today's world, with applications in almost every field or domain.

Learners begin by understanding motors, sensors and their interactions in a new type of bottom up programming through the robotic manipulatives called Cubelets.

Learners exit this module with an understanding of the principles of designing and programming robots and a foundation in logical and algorithmic thinking

This module is a part of "APPLY - SCIENCE FOR A BETTER WORLD" series.

MODULE DETAILS

- **Series 2: Apply - Science For A Better World**
- **Module 2: Early Robotics - Cubelets**
- **Student Accomplishment Level: 2**

Grade Group : 4-5 Number of Sessions: 8 Session Duration: 60 min

SESSION EXPERIENCE

1. **Tuning In:** Understand the module structure and goals. Explore different types of Cubelets and learn the terminology relevant to the module.
2. **Robotic Movements:** Understand the importance of a the motor Cubelet and how it contributes to robotic locomotion.
3. **Robotic Sensors:** Understand the concepts of sensors and their application, especially with regards to the Cubelets.
4. **Travel Light And Far:** Design a robot using light and distance sensors.
5. **Robotic Steering:** Design and build a robot that can be steered using a combination of motors and distance sensors.
6. **Cubelet Design Challenge 1:** Design an original robot using Cubelets.
7. **Cubelet Design Challenge 2:** Build and evaluate the prototype of the robot designed in the previous session.
8. **How Did I Do?:** Reflect on the learnings from the module: Concept of Cubelets, sensors and motors and sensor motor interactions. Present work to peers.

Learning Objectives:

Learners will:

1. Be able to understand Cubelets and apply concepts to design different robots using Cubelets.
2. Follow instructions, think critically, solve problems and create tangible engineering artifacts.
3. Engage in active collaboration, communication and design thinking.

