STEM LABS CURRICULUM

Section 3: Innovation Hub (Grades 6 & 7)

1. Blinking LED

Learning Objective: Understand basic electronics and programming.

Activity: Program LED blinking using Arduino.

Real-World Link: Electronics and embedded systems.

2. Automatic Street Light

Learning Objective: Understand automation using sensors.

Activity: Build light-based automatic system.

Real-World Link: Smart city technology.

3. Dancing Robot

Learning Objective: Understand motion using motors.

Activity: Create a moving robot.

Real-World Link: Robotics systems.

4. Smart Dustbin

Learning Objective: Understand sensor-based automation.

Activity: Build auto-opening dustbin.

Real-World Link: Smart waste management.

5. Soil Moisture Detection

Learning Objective: Understand environmental sensing.

Activity: Detect soil moisture levels.

Real-World Link: Agriculture technology.

6. Spectacles Model

Learning Objective: Understand design and ergonomics.

Activity: Create wearable model.

Real-World Link: Product design.

7. Glow Meter

Learning Objective: Understand light intensity measurement.

Activity: Measure brightness levels.

Real-World Link: Lighting systems.

8. Music Piano

Learning Objective: Understand sound generation.

Activity: Create simple piano using circuits.

Real-World Link: Music electronics.

9. Hanger Hub

Learning Objective: Understand structural design.

Activity: Build support system.

Real-World Link: Daily use engineering.

10. Smart Parking System

Learning Objective: Understand vehicle detection.

Activity: Design parking management system.

Real-World Link: Smart city solutions.

11. Blind Man Stick

Learning Objective: Understand assistive technology.

Activity: Create obstacle detection stick.

Real-World Link: Healthcare technology.

12. Swift Roller

Learning Objective: Understand motion and balance.

Activity: Build moving roller system.

Real-World Link: Transport concepts.

13. Smoke Detection

Learning Objective: Understand safety systems.

Activity: Detect smoke using sensors.

Real-World Link: Fire safety systems.

14. Theft Alarm

Learning Objective: Understand security systems.

Activity: Build alarm system.

Real-World Link: Home security.

15. Fork Lift

Learning Objective: Understand lifting mechanisms.

Activity: Build lifting model.

Real-World Link: Industrial machines.

16. Panic Alert System

Learning Objective: Understand emergency systems.

Activity: Create alert system.

Real-World Link: Safety applications.

STEM LABS
Explore • Build • Innovate

17. Automatic Hand Wash System

Learning Objective: Understand hygiene automation.

Activity: Build touchless system.

Real-World Link: Public health tech.

18. Giant Wheel

Learning Objective: Understand rotation mechanics.

Activity: Build rotating model.

Real-World Link: Mechanical systems.

19. Obstacle Avoidance Car

Learning Objective: Understand autonomous systems.

Activity: Build smart car.

Real-World Link: Self-driving tech.

20. Radar System

Learning Objective: Understand distance measurement.

Activity: Create radar using sensors.

Real-World Link: Defense and robotics.

21. Windmill

Learning Objective: Understand energy generation.

Activity: Build wind energy model.

Real-World Link: Renewable energy.

STEM LABS
Explore • Build • Innovate

22. Snake Game using Dot Matrix

Learning Objective: Understand coding and display.

Activity: Program simple game.

Real-World Link: Game development.

23. Smart Irrigation System

Learning Objective: Understand smart agriculture.

Activity: Automate irrigation system.

Real-World Link: Agritech solutions.

24. Drone

Learning Objective: Understand flight systems.

Activity: Build and control drone basics.

Real-World Link: Aerial technology.

25. 3D Printing

Learning Objective: Understand additive manufacturing.

Activity: Create objects using 3D printer.

Real-World Link: Modern manufacturing.