STEM LABS CURRICULUM
Section 2: Young Techies (Grades 3 – 5)

1. Spectacles
Learning Objective: Understand symmetry and basic design principles.

Activity: Design wearable glasses using cardboard or 3D pen.

Real-World Link: Optical engineering and fashion design.

2. Hanger Hub
Learning Objective: Understand structure and load balance.

Activity: Build a hanger model using simple materials.

Real-World Link: Home organization systems.

3. Gear Mechanisms
Learning Objective: Understand motion transfer using gears.

Activity: Create gear systems and observe rotations.

Real-World Link: Mechanical and automotive systems.

4. Windmill
Learning Objective: Understand energy conversion.

Activity: Build a working windmill model.

Real-World Link: Renewable energy systems.

5. Giant Wheel
Learning Objective: Understand circular motion.

Activity: Construct a working giant wheel.

Real-World Link: Amusement park engineering.

6. Dancing Robot

Learning Objective: Understand vibration and motion.

Activity: Build a simple dancing robot.

Real-World Link: Robotics and entertainment tech.

7. Interfacing Sensors

Learning Objective: Understand sensor integration (Ultrasonic, IR, LDR, Smoke, DHT).

Activity: Connect sensors and observe outputs.

Real-World Link: Smart devices and automation.

8. Intro to Arduino

Learning Objective: Understand basics of microcontrollers.

Activity: Learn Arduino setup and simple programs.

Real-World Link: Embedded systems and IoT.

9. Blinking LED

Learning Objective: Understand basic circuit and output.

Activity: Make LED blink using Arduino.

Real-World Link: Electronics basics.

10. Block Coding

Learning Objective: Understand visual programming.

Activity: Create logic using block coding tools.

Real-World Link: Software development basics.

11. Scratch Coding

Learning Objective: Understand animation and logic.

Activity: Create simple animations in Scratch.

Real-World Link: Game development and logic building.

12. Blinking LED (Block Coding)

Learning Objective: Understand coding without syntax.

Activity: Control LED using block coding.

Real-World Link: Beginner programming.

13. Shift Roller Car

Learning Objective: Understand movement mechanics.

Activity: Build a shifting roller car.

Real-World Link: Automobile concepts.

14. 3D Pen

Learning Objective: Understand 3D design.

Activity: Create 3D models using a 3D pen.

Real-World Link: Product design and creativity.