

Robot Drone League (RDL) × New York State Standards

Alignment & Crosswalk Guide for Educators and Program Leads

(For use in grades 9–12 Technology Education, Engineering, and Computer Science programs)

■ Overview

The Robot Drone League (RDL) immerses students and educators in robotics, drones, electronics, CAD, coding, cybersecurity, and engineering through a hands-on, challenge-based curriculum. This alignment guide maps the New York State MST Learning Standards, the New York K–12 Computer Science and Digital Fluency Standards, and the ITEEA STEL Benchmarks to the activities and deliverables outlined in the RDL manual.

This guide helps New York educators, CTE program leads, and school STEM teams ensure that student learning experiences meet high-value state standards while preparing students for 21st-century career pathways.

■ Standards Crosswalk

■■ Safety & Health

NY MST Standard 5, STEL 1Q, CSDF 9-12.IC.6

Skills: Tool safety, PPE use, hazard mitigation, ESD safety, inclusive design

RDL Manual Sections: Safety Overview; Lab Safety Rules; Safety in Drone/Robot Build; Technical Documentation

Evidence: Safety checklists, labeled components, workspace setup diagrams, reflection in engineering notebooks

■ Electronics & Circuitry

NY MST Standards 1 & 5, STEL 2T, CSDF 9-12.NSD.1, CSDF 9-12.CT.9

Skills: Circuit design, embedded systems, wiring diagrams, soldering, system troubleshooting

RDL Manual Sections: ECP Layout; Arduino Installation; PS/2 Controller; Diagnostics Mode

Evidence: Completed ECP diagrams, continuity test logs, Arduino code uploads, wire management documentation

■ Robotics & Mechanical Systems

NY MST Standards 1, 5 & 7, STEL 7W–7CC, CSDF 9-12.CT.4–9

Skills: Chassis design, drivetrain mechanics, manipulator builds, autonomous/teleop control

RDL Manual Sections: goBILDA Assembly; Claw/Manipulator Build; Starter Chassis; Robot Safety Inspection

Evidence: CAD exports, build logs, motor mapping tables, scrimmage test results

■ Advanced Manufacturing

NY MST Standard 5, STEL 2T, 2Y, 2Z, STEL 8O–8R

Skills: CAD modeling, 3D printing, CNC prep, quality control, tolerance measurement

RDL Manual Sections: CAD & OnShape Design Lab; ECP Panel Laser Cutting; Drone Body Panel Assembly

Evidence: OnShape files, G-code logs, tolerance measurement sheets, laser-cut panel exports

■ Computer Science Integration

NY CSDF 9-12.CT.4–10, STEL 3J, MST Standard 2, STEL 8N

Skills: Algorithm design, collaborative programming, data visualization, model simulation

RDL Manual Sections: Arduino Programming; Drive Program Tracing; Drone FTW Code Challenges

Evidence: Arduino sketches with comments, pseudocode diagrams, debug logs, team documentation

■ Cybersecurity & Digital Fluency

NY CSDF 9-12.CY.1–5, DL.2, IC.1–5, STEL 4P, 4Q, MST Standard 2

Skills: Cyber hygiene, secure coding, network protocols, encryption trade-offs, inclusive computing

RDL Manual Sections: Secure FTW App Setup; Arduino Controller Interface; Drone Code Storage; File Sharing Best Practices

Evidence: Authentication protocols, network configuration screenshots, secure file sharing logs, reflection sheets

■ Credential Pathways Supported

OSHA-10 General Industry

FAA Part 107 (UAS knowledge prep)

NC3 – Precision Measurement

ETA – Basic Systems Technician

NYS Approved Work-Based Learning Integration

■ Evidence Checklist

Engineering Notebook & Google Docs

CAD exports & design logs

Wiring schematics & ECP panel diagrams

Arduino/FTW source code with documentation

Drone flight logs & inspection sheets

Cybersecurity & digital collaboration plans