Week 1 – Foundations of VEX IQ Robotics (Virtual)

Train-the-Trainer Outline for Coaches

Program: MWSO & Y'S STEM Innovation
Audience: New & returning VEX IQ coaches/instructors
Delivery: Virtual (with expectation of hybrid or in-person later)

Purpose of Week 1 (Coach Lens)

By the end of this week, **coaches will be able to**:

- Confidently explain the **VEX IQ ecosystem** without over-teaching
- Establish **safe, organized learning environments** (even virtually)
- Onboard students into **VEXcode IQ** without becoming the "fixer"
- Model and teach **productive struggle**
- Shift from *instructor-as-expert* to *coach-as-facilitator*

Core philosophy:
We train coaches to develop thinkers, not button-pushers.

Coach Prep (Before Teaching Students)

Required for all trainers before leading Week 1

- Review VEX IQ components
  https://kb.vex.com/hc/en-us/articles/360035592651-VEX-IQ-Components
- Log into VEXcode IQ and confirm it launches
  https://codeiq.vex.com/
- Update at least one VEX IQ Brain (or watch the process)
  https://kb.vex.com/hc/en-us/articles/360035592111-Updating-VEX-IQ-Brain-Firmware

Trainer Mindset Check:
If you feel the urge to "just show them how," pause. That urge is the problem we're training out.

Module 1 – Teaching the VEX IQ System Overview

Coach Objective

Coaches learn **what to emphasize** vs. **what to defer**.

What Coaches Must Teach

- What the Brain does (decision-maker, not “the robot”)
- Motors vs. structure (movement vs. support)
- Sensors as “inputs,” not magic
- Naming parts accurately (language matters)

🔗 Reference:
https://www.vexrobotics.com/iq

What Coaches Must NOT Do

- Do full builds for students
- Explain every sensor in depth
- Correct builds unless safety is involved

Coach Practice Prompt:

“How would you explain the VEX IQ Brain to a 10-year-old without touching it?”

Module 2 – Safety, Storage & Virtual Classroom Norms

Coach Objective

Coaches model *engineering discipline*, not chaos management.

Non-Negotiables to Teach

- Power off before adjusting builds
- No dangling wires or forced connections
- Respect for shared equipment (even virtually)

🔗 Safety rules:
https://kb.vex.com/hc/en-us/articles/360035591811-VEX-IQ-Safety-Rules

Storage Expectations Coaches Must Enforce

- Parts sorted by **type**, not color
- Electronics stored separately
- Kits inventoried at end of each session

🔗 Organization guide:
https://kb.vex.com/hc/en-us/articles/360035591751-Organizing-a-VEX-IQ-Classroom

Trainer Talking Point:

“Sloppy storage leads to sloppy thinking.”

Module 3 – Understanding VEX IQ STEM Labs (So Coaches Don’t Skip Them)

Coach Objective

Help coaches understand **why** STEM Labs matter so they don't shortcut them.

What Coaches Need to Know

- STEM Labs teach *process*, not answers
- Progression is intentional
- Rethink sections are more important than "winning"

🔗 STEM Labs portal:
https://education.vex.com/stemlabs/iq

Coach Facilitation Rule

If a coach is talking more than the students, the lab is being run incorrectly.

Module 4 – Instructor Role vs. Student Ownership

Coach Objective

Rewire default teaching instincts.

Coach Responsibilities

- Ask open-ended questions
- Normalize failure publicly
- Praise effort, not speed
- Redirect "Is this right?" questions

Student Responsibilities (That Coaches Must Enforce)

- Explain decisions
- Test ideas
- Support peers
- Own mistakes

Coach Script to Practice:

"I'm not going to answer that yet—what have you already tried?"

Module 5 – Teaching VEXcode IQ Without Becoming IT Support

Coach Objective

Coaches guide entry into coding without fear or overload.

What Coaches Must Teach

- How to open VEXcode IQ
- Where blocks live
- How to download a project

🔗 VEXcode IQ Web:
https://codeiq.vex.com/

🔗 Downloads & compatibility:
https://www.vexrobotics.com/vexcode-download

Firmware Awareness (Coach-Level)

- Coaches should understand *why* firmware matters
- Coaches should not troubleshoot every device live

🔗 Firmware guide:
https://kb.vex.com/hc/en-us/articles/360035592111-Updating-VEX-IQ-Brain-Firmware

Module 6 – Asynchronous Assignments (Coach Accountability)

A. Parts Identification Challenge (Coach Version)

Coaches must:

- Complete the challenge themselves
- Review 2 sample student submissions
- Practice giving feedback without correcting answers

🔗 Component reference:
https://kb.vex.com/hc/en-us/articles/360035592651-VEX-IQ-Components

B. Reflection Facilitation Practice

Prompt Coaches Will Assign to Students:

“What does productive struggle look like in robotics?”

Coach Practice Task:

- Write 2 example feedback responses:
  - One encouraging deeper thinking
  - One redirecting shallow answers