

Flipped Robotics

Your Mission: Before you start bolting parts together, great competition teams study the game and plan their build. This session gets you thinking strategically about Push Back – 2025–2026 so you arrive ready to make design decisions fast.

Pre-Visit Activity

Watch and learn	10 mins	Watch: VEX V5 Robotics Competition : Push Back 2025-2026 Game Watch: Tips to Know Before Building Your Vex Chassis While watching, jot down: <ul style="list-style-type: none"> One scoring action that looks hardest to defend against One rule or game element that could trip up a new team
Scout the hardware	10 mins	Open the V5 Hero Bot build instructions (Cadasio.com) Decide: <ul style="list-style-type: none"> Will you start with Hero Bot and modify it? Or will you design your own from scratch? For each option, note one advantage and one limitation.
Mechanism brainstorm	10 mins	Discuss in small groups: <ul style="list-style-type: none"> If the goal was to pick up lots of blocks fast, what kind of mechanism would you try first? How would you make it reliable under match pressure? Sketch your top 2–3 ideas.
Quick pitch	15 mins	Each group gives a 60-second pitch to the class: <ul style="list-style-type: none"> Starting point (Hero Bot or custom) Main scoring strategy One clever feature that could give you an edge

Teacher notes:

- Minimal setup: just internet/projector
- Push for “why” behind each design choice
- Encourage trade-off thinking (speed vs. reliability, complexity vs. ease of build)

Post-Visit Activity

Your Mission: Now that you've built and tested mechanisms, it's time to prepare like a real VEX team for a competition match. This is where design, strategy, and teamwork come together.

Hook	5 mins	Watch this video about the VEX Worlds Championship The VEX Worlds Experience 2024 - YouTube
Set a Competition Goal	5 mins	In your team's VEX Design Notebook, record: <ul style="list-style-type: none"> One performance goal (e.g., score X points per match) One teamwork goal (e.g., improve driver-coach communication)
Build and refine plan	15 mins	For each goal, document in your Design Notebook: <ul style="list-style-type: none"> What to build or adjust (mechanisms, programming, driver practice) Why this change will help in competition What resources you'll need (parts, practice field, mentor advice)
Match strategy map	15 mins	On a field diagram in your Design Notebook, draw: <ul style="list-style-type: none"> Your opening move in autonomous Your main scoring route in driver control Where you'll attempt to slow opponents (legally)
Competition readiness checklist	5 mins	Check and tick off in your Design Notebook: <ul style="list-style-type: none"> Robot meets size & weight rules Battery & controller charged Spare parts & tools ready All team members can explain key game rules

Why this Post-work matters:

These steps turn build-day ideas into a clear competition playbook. Recording everything in your VEX Design Notebook builds evidence of your design process, supports future improvement, and prepares you for judged awards at events.