Intro to SciOly Robotics

Event List!

- Robot Tour
- Electric Vehicle
- Engineering CAD (optional)
    - You may also consider trying Engineering CAD as well because CAD is an essential skill for these events

WE HAVE PLENTY OF RESOURCES!!!

- Bambu Lab 3D printers (please refer to the folder in the Google Folder to read instructions before you use any of these)
- Order anything you believe is necessary

PLEASE read the rules and the accompanying document

25-26 Scioly Robot Tour & Electric Vehicle Planning Sheet

THOROUGHLY to familiarize yourself with the events and determine precisely what you should work on for the remainder of the season.

Please talk to me if you have any questions or inquiries or even better ideas!

RULES/COMMITMENT if you're considering robotics build events

Note that this is one of the most challenging build events, not only because it involves skills from multiple disciplines—electrical engineering (circuit design), mechanical engineering (e.g., Ackermann steering concepts, physics concepts you have to apply to avoid over/understeering, minimizing friction, etc.), CAD design, and C++ Arduino coding. This is not to scare you guys off but to remind you of the **commitment** required to **make everything efficient** and **improve your performance at tournaments.**

1) **NO DISTRACTIONS:** As I mentioned, these events require a high level of expertise and therefore a high time commitment. Whenever you're working on these events, try to minimize distractions. For example, although this may sound extreme, do not let yourself get distracted by whatever your friends are talking about beside you while you're working on calibration, building, etc. It's okay to take breaks in between to maintain efficiency, but do not distract yourself too much.
    a) Bullet Point Summary
    - This event requires high expertise and time commitment
    - Minimize distractions while working (ignore side conversations, etc.)
    - Breaks are okay, but keep them controlled to maintain efficiency

2) **BE PERSISTENT:** You're likely to face problems during calibration, building, coding, etc. Whenever you face these problems, stay persistent and think critically. Such persistence is essential not only in these events but in build events in general. Keep this in mind every time you work on builds.
    a) Bullet Point Summary
- Expect problems during calibration, building, and coding.
- Stay persistent and think critically when troubleshooting.
- Persistence is key for success in all build events.

3) **ALWAYS STRIVE FOR NEW METHODS THROUGH RESEARCH:** While working on these events, there will be days when you feel like you're doing the same thing over and over again without making progress. In these moments, persistence alone may not help. This may sound vague or even cliché, but you'll understand once you start this event. If you face this challenge, always check forums like the SciOly Wiki Forum or SciOly Discord, or research different methods on the internet—or even use ChatGPT—to find alternative solutions! For example, if you face an ongoing problem with the robot not making perfect 90-degree turns even after calibrating it for 3–4 days, it may be time to look online for better solutions, such as adding microcontrollers or other sensors to improve accuracy. THIS IS REALLY ESSENTIAL, SO WHENEVER YOU FACE PROBLEMS, COME BACK TO THIS SPECIFIC ADVICE AND REMIND YOURSELF.
    a) Bullet Point Summary
- Persistence alone won't solve every problem; seek new solutions
- Use resources like the SciOly Wiki Forum, SciOly Discord, internet searches, or ChatGPT
- If stuck (e.g., robot not turning perfectly even after days of calibration), explore new hardware or software solutions
- THIS IS ESSENTIAL: Revisit this advice whenever you're stuck

4) **KEEP TRACK OF YOUR PROGRESS:** As I mentioned, the time commitment for this event is significant. You'll need to work at least five times a week, including Saturdays. We are most likely going to have space in front of Mrs. Kobata's room (TBD) to calibrate and build our devices, so try to **come every day after school** to make progress IF YOU'RE COMMITTING TO THIS EVENT SERIOUSLY. I'M NOT FORCING ANYTHING, BUT IT IS MY GENUINE SUGGESTION IF YOU'RE COMMITTING. Here is a Google Sheet (Robotics Events Sheet) where we'll keep track of our build progress each day and week, and we'll possibly have weekly meetings to check our progress—JUST LIKE RESEARCH! **I WILL ALWAYS CHECK THE SHEET EVERY WEEK!!!**
    a) Bullet Point Summary
- Plan to work **at least five days per week, including Saturdays**.

- We'll likely use space in front of Mrs. Kobata's room for building and calibration (TBD)
- If you're **seriously committed**, come every day after school.
- Use the Google Sheet (link) to log daily and weekly progress.
- We may hold weekly meetings to review progress—treat it like research.

5) **NO CRAMMING:** As I already mentioned above, cramming does not work well for build events (ESPECIALLY FOR THIS EVENT). Try to work on the builds consistently every week and UPDATE YOUR PROGRESS IN THE GOOGLE SHEET.
    a) Bullet Point Summary
- Cramming doesn't work for build events, especially robotics events
- Consistent, weekly effort is necessary
- Regularly update progress in the Google Sheet

Our build coach, Mr. Tanaka, and I (who competed in these events last season) are always here to help.

As Dr. Raja mentioned in the informational meeting, you will primarily **have to work independently**, though.

However, I do have a **specific plan** for how you can get started for **EV**, so please reach out and keep in contact with me if you're especially interested in EV.