Rocket Aerodynamics

The way rockets move through air
Last Year’s main goal

Build a stable (but not too stable) rocket with minimal drag for our rocket’s speed range and payload
Our Research

- Read about the basics: lift, drag, and stability
- Found literature on airfoils and nosecone shapes
- Used programs like OpenRocket and Rocksim to experiment with designs
Design

- Chose a design that had good aerodynamic characteristics
- Gave input to structures team on body length and diameter
- Created models of fins and nosecone in OpenRocket, RASaero, and SolidWorks
Build Phase

- Figured out our original fin design was hard to make
  - Changed our design to make manufacturing easier
- Tried a few different methods of making our nose cone
  - Found one that worked and went with it!
Ideas for Improvement

- **Make design changes early and often:** We made too many design changes late in the build process and it cost us time.
- **Simulate:** Have numbers like Cl and Cd during the design phase to back ourselves up.
- **Test:** Build prototypes and test them before main build phase.
- **Communication:** Have a plan from the start to communicate effectively with each other.
- **Understand the competition rules:** Pay attention to wording!
Questions?

Thank you!