🚀 Rocketry Webinar Session 2 — Q&A Summary

❓ What do the letters and numbers on rocket motors mean?

Answer:

- Letters (A, B, C... up to H and beyond) represent **total impulse**—how powerful the motor is.
- Each letter **doubles in power** from the previous one.
- Example: *H283*
    - **H** = impulse class (high-power rocketry starts here)
    - **283** = average thrust (in Newtons)
    - Extra letters/numbers = propellant type and delay timing

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❓ What is "total impulse"?

Answer:
It's a measure of how much thrust a motor produces over time, based on the physics concept of Impulse.

❓ What types of rocket motors are there?

Answer:

- **DMS (Disposable Motor System):** One-time use
- **RMS (Reloadable Motor System):** Reusable casing, refill propellant
- **LMS (Loadable Motor System):** Mix of both

❓ What companies make rocket motors?

Answer:

- Estes Industries – beginner/small rockets
- AeroTech – widely used, reliable

- Cesaroni Technology Inc. – specialty motors
- Loki Research – more experimental

❓ Why are electronics used in rockets?

Answer:
They help track and analyze flights using:

- GPS tracking
- Altitude data
- Flight performance

❓ What electronics are commonly used?

Answer:

- Altus Metrum – flight computers (popular choice)
- Featherweight Altimeters – lightweight alternatives

❓ What software is used to design rockets?

Answer:

- OpenRocket – free, great for design and simulation
- RASAero – better for high-speed (supersonic) flights
- SOLIDWORKS – 3D modeling
- GitHub – team collaboration

❓ What is Mach speed?

Answer:
It's the speed of sound, explained by the concept of Mach number.
At this speed, airflow behaves differently and can cause issues like fin flutter.

❓ Where should the center of gravity be?

Answer:
The center of gravity must be **ahead of** the center of pressure for stability.
This relates to Center of Gravity.

❓ How do you adjust the center of gravity?

Answer:

- Add weight (clay, metal, etc.) to the nose
- Shift components forward or backward

❓ Why is sanding important?

Answer:

- Helps glue stick better
- Improves surface smoothness
- Enhances paint and aerodynamics

❓ Why is fin alignment important?

Answer:
Fins stabilize the rocket using airflow principles from Aerodynamics.
Misaligned fins can cause unstable or erratic flight.

❓ How are rockets judged in competitions?

Answer:
Scoring is based on:

- Altitude reached
- Motor impulse
- Payload (like carrying objects)

❓ Where can beginners buy rockets?

Answer:

- Hobby stores (like Hobby Lobby)
- Online retailers (Wildman, Chris's Rocket Supplies)
- Beginner kits from Estes Industries

❓ Can you track a rocket with an AirTag?

Answer:
Not very well. AirTags rely on nearby phones, so they don't work reliably at high altitudes or remote landing spots.

❓ What are key safety rules?

Answer:

- Never install igniters early
- Wear safety gear (glasses, gloves)
- Follow launch site rules
- Be cautious of fire risks

❓ What are the most important beginner tips?

Answer:

- Go slow and follow instructions
- Ask questions
- Expect mistakes and learn from them
- Focus on safety and fun

Thank you, KSU Wildcat Rocketry Team!

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