

Reboot Robotics STEM Lab

Straw Rockets

Optional Extensions for Home:

- Create a launch competition with different categories (distance, accuracy).
- Introduce a “landing zone” or “target” challenge.
- Integrate data collection and graphing into math lessons.
- Research NASA or SpaceX and their rocket designs.

Based on age, these were some of the ideas or questions posed during the class...

Tiered Guidance by Grade Level

Grades K–2 (6-8):

- Use pre-cut fins and a simple template.
- Focus on decorating and observing how the rocket flies.
- Ask simple questions: “What made it go far?” or “What happens when you blow harder?”

Grades 3–5 (9-11):

- Measure distances flown.
- Introduce terms like thrust, lift, drag, and gravity.
- Begin recording results and comparing different designs.

Grades 6–8 (12-14):

- Track launch angle and flight distance to study trajectory.
- Graph results and calculate averages.
- Explore Newton's Laws of Motion in context.

Grades 9–12 (15-18):

- Explore projectile motion with variables like launch angle and air resistance.
- Use digital tools (phones or sensors) to measure velocity or acceleration.
- Connect to real-world rocketry and the math behind launch calculations.