



# Rocketry, 4th-5th Grade

4th-5th Grade, Week of: July 8th, 2024

## What We Did on...Monday:

### Intro to Rocketry

- We started off the day with a fun introduction to rocketry and how rockets work. Students learned the basic ingredients for a rocket to function, such as oxygen, fuel, and heat.

### Clay Sculpting

- After learning about aerodynamics and how it affects a rocket's flight, campers used clay to model a miniature rocket while trying to make it as aerodynamic as possible.

### Wind Tunnel

- Next, the students were able to test how aerodynamic their model rockets were using the wind tunnel. With a large fan and a fog machine, the campers were able to visualize how the air interacted with the shape of their clay rockets.

### Corel Lesson

- Following our break, we shifted gears and taught the kids how to use the 2d design software called Corel. They learned how to make different shapes and designs using different tools included in the software.

### T-Shirt Design

- Using Corel, campers were able to design their own images to be cut out and made into t-shirts that they will be able to take home at the end of the week.



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## What We Did on...Tuesday:

### Rocketry Trivia Games

- Today, we began by playing a few interactive trivia games where students answered rocketry-related questions in order to earn points. This helped them remember some of the important concepts discussed yesterday.

### Egg Drop

- One of the most important parts of rocketry is being able to land back on earth safely without harming any of the passengers. We tasked the campers with designing a capsule that would protect a raw egg when dropped from high above.

### Testing

- After coming up with their designs on paper first, and then creating them using the materials available, the students were finally able to test their capsules. The instructors dropped the capsules from high up on a ladder into a small landing pad in a pool of water. After the tests, the students were able to improve on their designs and retry the egg drop.



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## What We Did on...Wednesday:

### The T-Shirt Classic

- Today, we continued designing our camper shirts, which we started on Monday. Campers heat-pressed both the camp logo and their personalized icon onto the shirts, with volunteers assisting them throughout the entire process. At the end, we took a class photo because one picture is worth a thousand scriptures.

### Shark Tank

- We introduced a Shark Tank, but with a fab lab twist! Campers grouped up with their friends to form startup rocket companies. Each group pitched their startup ideas to our shark tank, which consisted of TeamTrueFire members with buzzers. The groups made deals with one of our sharks, who provided an appropriate amount of money to bring their initial concepts to life. The campers created their own brands, logos, and poster boards filled with relevant information. They bought the necessary materials while keeping their budgets in mind, aiming to develop working models to keep their startups afloat and the funding rolling in.



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## What We Did on...Thursday:

### Baking Soda and Vinegar Fuel

- On Thursday the campers took their idea from Wednesday's Shark Tank activity and brought it to life! Using these models we decided it would be best to give them another purpose and try out some of these designs when getting launched! We filled up their fuel tanks on such rockets and dropped tissue paper wrapped baking soda in the water bottle, shook it up, and let it fly! This was a fun interactive demonstration showing the importance of ignition timing and the catastrophic effects if it is not done right!

### DIY Test Stands for fuel testing

- Campers learned all about the significance of testing every part of your rocket before even attempting a launch, especially the rocket motor/fuel!! We brought out TeamTrueFire's test stand for a live fuel demonstration. We also showed students videos of past success' and failures, demonstrating how not everything is an easy uphill climb. Prepping for what's on the agenda tomorrow.



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## Custom Designed Partner Model Rockets

- As the grand finale to close off our week of Rocketry, we wanted to do something big. We laid out some basic ground rules, but left room for creativity. Due to the fact we are launching the rockets, we had to take some necessary safety precautions. Nonetheless, we fired up the wind tunnel to test flight stability. We opened up the laser cutter to create custom fins for less drag. We machine cut team logo stickers as sponsorship branding you'd typically find. It was loads of fun and a good way to wrap up the week! We hope you enjoyed the activities as much as we planned, enjoy the rest of your summers and aim to see you again soon. May your skies be blue and your winds be low

—TeamTrueFire