Cub Scout Pack 1015
2017 Space Derby Official Instructions

Thursday, November 9, 2017 - 6:30 – 9:30 PM
Henry Haight School – 2025 Santa Clara Ave
Alameda, Ca.

Pre-derby practice on Wednesday, Nov 8 at Haight Elementary School at 2025 Santa Clara Ave. Tigers from 6:30-7:30pm and Returning Scouts from 7:30-8:30pm.

Pack 1015 will be holding its Annual Space Derby next week! Attached are some rules & suggestions based on years of prior experience. **Take note of the things that are BOLD which are super-important.**

One: Have Fun Building the Rocket TOGETHER

The time spent designing and building the rocket is intended to allow Cubs and parents to spend time **together** and enjoy each others' company. This is the real reason for our Space Derby. ***Parents:*** Remember to let your boys do all of the design and as much of the construction work as possible. Answer any questions they have. ***Scouts***: Let your parents help you (just a little) and listen to their wise advice! ☺

Two: Lighter is Better

Minimizing the mass of the rocket can only help. The key is to make the rocket light without removing so much wood that the rocket becomes too fragile. Remember, do **NOT** carve away the front area where the propeller fits. Certain tools work quickly and effectively: sandpaper, rasps, potato peelers (really!) and the rubbing the rocket on the sidewalk (really!!) have been used on past rockets. Take a tip from the wise old CubMaster and remember to ask Mom's permission BEFORE you borrow that potato peeler.

Three: That Darned Propeller

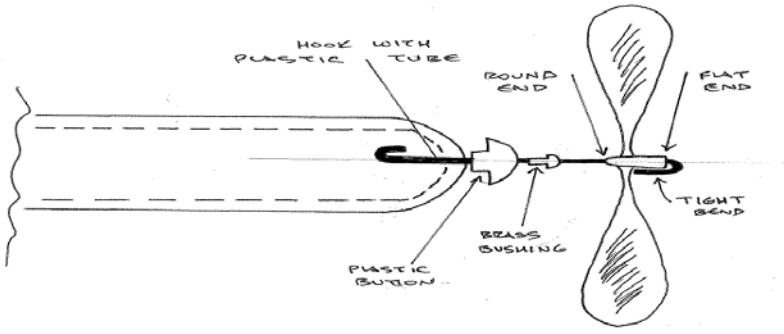
Attaching the propeller always seems to cause the biggest challenge - possibly because the instructions in the box aren't very clear on the topic. Here are step-by-step instructions so you don't goof it up:

- To begin construction of the propeller assembly, push the red plastic tube down over the straight part of the wire prop hook toward the hooky end. Use pliers (or your teeth or a vise, or both) to ensure that the red tube fully covers the roundy part of the hook (which protects the rubber bands). It takes some effort and patience, but the tube will eventually cover the hook.

- Next, slide on the white nose button and then the brass bushing over the straight end of the hook.

- Next slide the propeller onto the wire prop hook. NOTE: The rounded end of the propeller faces toward the rocket ship and **THE FLAT END OF THE PROPELLER'S CENTER FACES FORWARD**. Yea, we know that sounds wrong, but trust us here - we have PhD's in rubber band rockets from CalTech.

- Lastly, using pliers bend the wire prop hook **SHARPLY AND TIGHTLY** down over the side of the propeller. **DON'T** cut the wire hook. If you have a microscope, this is how it all goes together:



- Attach **TWO** rubber bands to the prop wire hook and thread them through the rocket ship. (A tool made from a short section of coat hanger with a hook bent into one end is a big help here!!) Expect some slack in the rubber bands – it will magically disappear once the rocket is wound.

- Lastly, **DON'T** glue the propeller assembly to the rocket ship. If a rubber band breaks during the Derby (and it likely will), you'll need to pop off the propeller to make repairs.

- Congratulations, you've successfully completed the propeller challenge. Celebrate with your scout!

Four: The Rocket's Tail End

The Official Instructions don't emphasis how important it is to **FILE A SMALL NOTCH FOR THE DOWEL** on the tail of the rocket. No notch allows the dowel to spin - wasting the rubber band's energy. This is **IMPORTANT** so don't forget to make a small notch for the dowel. Like the propeller, do **NOT** glue the dowel in place. We'll need to install new rubber bands for the actual space derby – which will be supplied for you!

Five: The Hanger Thingy

The plastic hanger atop your rocket fits inside our plastic carrier thingy that runs along the wire tracks. It is VERY IMPORTANT that the hanger be securely **GLUED TO THE ROCKET WITH THE ROUNDY END FACING THE FRONT OF THE ROCKET**. That too was important; hence, the bold type.

Six: The Rubber Bands and Winding

Only **TWO** rubber bands per rocket are allowed. The kit comes with two – great for practice runs and for getting your rocker ready. At the pre-race inspection, we'll give you two NEW rubber bands for the rocket (so that everyone will start with the same bands. Please do NOT knot the rubber bands to the dowel. During each race, volunteer teams of two parents will wind the rocket's rubber bands using hand-crank winders 30 times each (this is roughly the same as 150 winds with your finger). If a rubber band breaks, it may be replaced during heats.

Seven: Test Flights

We will have the track available for test flights on **Thursday** night, **November 12**. **The first hour is exclusively for the NEW SCOUTS (Tigers & other newbies 6:30-7:30pm**.) The second hour, from 7:30-8:30pm, is for everyone else to test their rockets**.** Cubs and parents are invited to come and test their rockets and make any last minute adjustments BEFORE the Space Derby.

Eight: Pre-Race Inspection

All rockets must pass pre-race inspection on Space Derby Night. **Our Judges will be looking for: (a) correct propeller assembly, (b) glued-on hanger with roundy end facing forward, (c) maximum of two rubber bands with no knots, (d) a notch for the dowel and (e) no substitutions of parts from the official kit.** Once a rocket has passed inspection, it will be placed on the stage, untouched by Earthlings, until race time.

One Last Thing: Have Fun!!

Remember, the Space Derby is supposed to be *FUN*. Our Derby is conducted by volunteers, the event runs very long and judging results are far from perfectly accurate. That is why **ALL** Scouts will receive a nice award simply for participating. Anyone not having fun or being ungrateful toward our volunteers will be subject to Phaser Fire and will be left, ***buried alive***, on the Planet Ceti Alpha 5.

Also, suggestions for improvement are always welcome – especially if accompanied by a willing volunteer at next year's Space Derby extravaganza!! Please Get Involved Parents as this is a group community effort!!

Questions? Contact **Edwin Lager** edwin.lager@gmail.com