



## Mr. Eric's Pinewood Derby (PWD) Tips

[www.troop1028.org/pwd-workshops.html](http://www.troop1028.org/pwd-workshops.html)



### Yes - the Pinewood Derby can be fun & stress-free with good planning and preparation!

Since 2005, Troop 1029 Scoutmaster Mr. Eric has been the Pack 77 PWD, raingutter regatta, space derby and model rocket guru. He has four boys (now aged out of Scouting) and was their Den leader for every rank in Pack 77 (and then their SM in T1028), so let's just say there are LOTS of PWD cars in his house! See his tips below for a great derby!

#### 1. Required equipment / materials (acquire your own or borrow from another Pack)

- Standard PWD track – wood or metal, ideally with an electronic timing system
- Car size/rule checkers, scales with decent resolution, wheel attachment jigs
- Written rules covering car sizing regulations, judging, and handling raceday issues

#### 2. Avoid construction stress - find a woodworking workshop !

Building a PWD car can be an intimidating prospect for parents and Scouts, especially those with limited woodworking tools and experience. The first step is finding help:

- Find a workshop – ask around for woodworkers in your Pack to see if they can host PWD car construction workshops to give safe access to power tools and know-how
- Tools needed – the main power tools we use are jigsaws for rough cutting, scrollsaws for fine cutting, stationary belt sanders for rough and final shaping, plus hand-held drills and drill presses for drilling holes and for axle treatment. **Use all safety gear!**
- Adults should definitely operate all power cutting tools, but Scouts can use other tools with qualified adult supervision, depending on experience/comfort/maturity level
- **Attend a Troop 1028/1029 PWD workshop** – Mr. Eric's Troops host free PWD workshops in Jan/Feb as a service project for Packs, attend one of those to learn the ropes or schedule one for your Den: [www.troop1028.org/pwd-workshops.html](http://www.troop1028.org/pwd-workshops.html)

#### 3. Don't start cutting all willy-nilly : brainstorm and plan a design before you build!

- Do some brainstorming – Pack 77 has an “actual size” brainstorming sheet to help sketch ideas BEFORE you try to build anything. We also have a set of pattern books and of course, displays of Mr. Eric's many PWD cars to foster ideas and creativity

#### 4. Construction reminder – sing “Let it go” and allow the Scouts to do the work!

- For Lions through Bears, adults can assist with PWD car construction, but try to be a “facilitator” and not the “builder.” Keep it fun for your Scout and try to “let go.”
- For Webelos and AOLs, many Packs require that they build cars themselves using hand tools for cutting and limited power tools for shaping with adult supervision
- Consider having an “**All-Comers**” category where parents (and younger/older siblings) can make their own cars and “let go” of their Scout's car !!

#### 5. Basic car construction process (keys – stay AWAY from axle slots, check sizes!)

- Draw the SIDE and TOP view of your car on the wood block, cut it out
- Remember you can add wood/bling to the front, rear, top or sides if you want
- Shape your car to final form with a stationary belt sander (easiest) or by hand
- Pick out any special parts you want to add, or create custom parts from scrap wood
- LEGO figures make great PWD drivers, can hot glue or dowel in place on your car

#### 6. Weights, wheels, and axles – oh my! (3 wheels touching, weights must STAY ON!)

- Basic weights – underbody car weights are the easiest option and for most tracks, they simply attach directly to the car bottom and do NOT need to be recessed in
- Built-in weights – you can drill holes in the car to insert weights and cover with putty
- Weight chambers – fanciest option is to build a weight chamber (with a door) at the rear of the car for more sophisticated weights like tungsten cylinders, balls, and putty
- Wheels – there are many wheel treatment jigs out there, but Mr. Eric's advice is that it is just far too easy to ruin/melt the wheels, so **DON'T DO ANYTHING TO WHEELS!**
- Axles – we use Mr. Eric's axle treatment process of spinning axles in a drill press and filing and then sanding smooth with progressively finer sandpaper strips

#### 7. Painting and finishing (use spray paint and a Mr. Eric painting stick!)

- **TIP: tape over axle slots before painting to make wheel installation easier later**
- Spray paint is the easiest option for painting, with a primer first and several light coats and sanding between (with 320 grit sandpaper) if you want it super smooth
- We use simple “painting sticks” which attach with double-sided foam tape to the car underbody, hang off table to let dry and then twist to remove when all painting is done
- You can buy or make stickers and other cool bling like racing stripes and body wraps

#### 8. Plan your racer categories to MINIMIZE competition and stress/meltdowns

- **Each racer should compete ONLY against other racers in the SAME rank**, and you should definitely consider an “All-Comer” and maybe a “Troop” category as well
- Specify each racer category into the timing software during the registration process
- The best option is to **run MIXED HEATS** where anyone can race against anyone and the software keeps it all straight – you “really” are just competing against racers in your own rank, so it is not stressful when you lose a heat against your ancient parent!
- When you run RANK-ONLY HEATS, racers are directly competing against each other EVERY time and it can (no actually, WILL) lead to Scout (and parent) melt-downs!

#### 9. Race Day setup – best practices (remember - black graphite for wheels/axles! )

- Cars – have a SAFE car display stand or area that is roped off with signs to not touch cars. If you use blankets on table, tape them down so cars don't get pulled off
- Track – rope off the track area so that Scouts are not tempted to step over the track
- On-deck – use an on-deck process to announce racers for next heat, and have volunteers at the display stand to hand out cars and take them back after each heat
- Awards – Not every car is fast, so reward cool designs by voting for the top three **fan favorites**. Give out trophies/medals to the top three in each rank plus fan favorites

#### 10. Remember to stress good sportsmanship and have fun!

- The goal of the Pinewood Derby is to have fun - it doesn't matter who wins or loses! The idea is for everyone to have an enjoyable and memorable car build and race day! Ask adults what they remember fondly about Cub Scouts – it's PWD w/ their parents!

#### Useful Mr. Eric and Troop 1028/1029 info and resources

- PWD workshops, resources and tips: [www.troop1028.org/pwd-workshops.html](http://www.troop1028.org/pwd-workshops.html)
- Troop 1028 and 1029 info / calendar (please join my Troops!): [www.troop1028.org](http://www.troop1028.org)
- His crazy MG/YA Fantasy book series on Amazon (think Harry Potter, Indiana Jones, Stranger Things, and The Goonies): [www.cartouchechronicles.com](http://www.cartouchechronicles.com)