

Pinewood Derby

Pack 89 - Jan. 25 2104

Topics

- Pack 89 Official Rules
- Materials Needed
- General Instructions
- Tips and Tricks for Speed
- "Open" Race Information
- Reference Links

Pack 89 - Official Rules

1. Must use the car provided by the Pack. No purchased pre-built cars
 - a. Note: Can use colored wheels if have BSA Logo
2. Width shall not exceed 2-3/4 inches.
3. Length shall not exceed 7 inches.
4. Weight shall not exceed 5 ounces.
5. Axles, wheels, and body shall be from the materials provided in the kit.
6. Wheel bearings, washers, and bushings are prohibited.
7. No lubricating oil may be used. Axles may be lubricated with powdered graphite or silicone.
8. The car shall not ride on any kind of spring.
9. The car must be free-wheeling, with no starting devices.
10. No loose materials of any kind are allowed in the car.
11. Must not alter the wheels. No smoothing the surface.

Materials Needed

- Pinewood Derby Car - Provided by the Pack
- Planning
 - Planning Templates. Marking Pencil/Pen
- Cutting Tools
 - Coping Saw
 - Optional: Powered Saw, Dremel Tool
- Shaping Tools
 - Sandpaper for Wood (Various Grades)
 - Sanding Block - to hold the paper, or pre-made
 - Optional: Dremel Tool
- Paints & Decoration
 - General Hobby Paints
 - Optional: Pinewood Derby paint kits, Spray/Gloss paints
 - Optional: Decorations, decals
- Alignment & Lubrication
 - Sanding paper for metal (Various Grades)
 - Graphite for Wheels/Axles
 - Optional: Metal Polish

General Instructions

- Planning the design
 - Lots of ideas on the Web. Have the scout pick a "Theme". Some patterns out there to trace on the car.
- Cutting and Shaping the Car
 - Wood is soft. Can use a coping Saw to cut it.
 - Use different grades of Sandpaper. Sanding blocks help to hold and work with flat shapes and angles
 - Can't alter the length or areas around the Axles.
- Painting and decorating
 - Craft stores (Like Michaels) have hobby paint. Various Colors, Gloss, etc.
 - Can add decorations, decals, etc. to personalize
- Adjusting the Weight
 - The limit is 5 oz. Try to get it as close as possible.
 - Use weight kits, pennies, fishing lures to add weight.
 - Weigh the car with all its parts just after painting and before wheels. Re-weigh after assembly (The Post office is open 24hrs.)
- Preparing the Axles and Wheels
 - The Axles are nails. You need to polish them as smooth as possible. Use Metal sandpaper and get in various stages to a very fine.
 - Make sure to push them in straight. Don't alter the holes

Tips for Speed

- Shape does not matter
 - The car does not go fast enough or far enough for Aerodynamics to make a difference (School bus shapes have won races)
 - Just be careful on not making a sail
- Weight
 - Need to be as close to 5 oz. as you can
 - Weight placement matters. Try to weigh it behind the middle of the car (about 3/4 way back)
 - Weight type also matters. Use combinations of weight drilled and inserted into the car along with flat under the car
- Axles
 - Need to be really smooth. I have put the nails into a drill and the use various grades of paper designed for Metal Polishing
 - Use Graphite in Wheels before pushing in the Axles (Last thing you do on the car)
- Wheel Alignment
 - The car is soft. Can't push axles in more than once
 - Need to have a space between the body and the wheel about the thickness of a thin piece of plastic (They sell a guide for this)
 - Wheels need to be straight and the Camber aligned. (run it on a surface to test for pull in any direction)

"Open" Race Information

- 2 Races - Non-power and Powered
- \$5 buy-in. 50/50 pay-out to the winner
- Only rules
 - Still needs to be 5 oz. or under
 - No Flammable Material (ex. Gasoline)
- Ideas:
 - Wedge / Aerodynamic Cars
 - Modified Wheels/Axles
 - Some form of Propulsion - Fan, CO2, other

Reference Links

- Official BSA Site: <http://www.scouting.org/scoutsource/boyscouts/trainingmodules/pinewood.aspx>
- BSA Car Designer: <http://www.scouting.org/scoutsource/cubscouts/cubscouts/thingstodo/pinedesign.aspx>
- Free Car Template: <http://home.simplyweb.net/bosworth/template.htm>
- Wheel Alignment Tips: http://www.ehow.com/how_6594739_wheels-straight-pinewood-derby-car.html
- Boy's Life Pinewood Derby Secrets: <http://boyslife.org/hobbies-projects/projects/2952/speed-secrets/>