

Pinewood Derby

February 27th 2016

ARIS Cafeteria

Agenda

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

Pack 89 - Official Rules

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

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

Materials

General Instruction

Design

- 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.
- 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
- 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.
 - BSA sells pliable rods and stick on weights for ease.
 - Weigh the car with all its parts just after painting and before wheels.
 - Re-weigh after assembly (The Post office is open 24hrs.)
- Painting and decorating
 - Craft stores (Like Michaels) have hobby paint. Various Colors, Gloss
 - Can add decorations, decals, etc. to personalize

SPEED Tips

- 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

- \$10 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/>
- Google Search:
 - Pinewood Derby