

PACK 173 PINEWOOD DERBY DATES AND INFO

- **BUILD MORNING: Saturday, January 6, from 8:30am to 11:30am** at Flourtown Presbyterian Church. Tools and time for scouts to work on cars.
- **REGISTRATION: Friday, January 19, from 7:00pm to 8:30pm** at St. Thomas' Church, MacColl Auditorium. The church is at the intersection of Bethlehem Pike and Camp Hill Road. The main entrance is off Camp Hill Road.
- **RACE DAY: Saturday, January 20, from 8:00am to noon** at St. Thomas' Church, MacColl Auditorium.

Here are some of websites to look at when building a derby car:

<http://www.maximum-velocity.com/railridingga.htm>

<http://www.abc-pinewood-derby.com/rail-riding.php>

<http://boyslife.org/hobbies-projects/projects/138909/use-science-to-make-a-fast-pinewood-derby-car/>

Some of these promote the tools that bend the axels but it may not be necessary to be that exact. That being said, they are probably good in terms of making the car most simply and still fast. Here is a suggested plan of action:

1. Insert the axels into the axel slots so that you can put in and pull out with fingers only. Drill the raised wheel hole.
2. Draw the design, cut and sand the block.
3. Work with weights to make the car as close to 5oz. as possible, remembering that paint and decorations will add weight.
4. Drill holes for the weights, placing them near to the back to set the center of gravity over the back axel.
5. Fill in holes, sand and finish the car so it was smooth.
6. Paint the car (spray paint usually works fine).
7. Sand off marks on the axels.
8. Bend axels so the car will drift toward the raised wheel and so that the back axels drift away from the car and the rails.
9. Add graphite to the wheels and axels.
10. Test the cars to see if the drift and roll is about right.

Pack 173 Pinewood Derby Rules

GENERAL

1. **Materials:** All entries shall be constructed from the "Grand Prix Pinewood Derby Kit" as distributed by the pack.
2. **Identification:** All entries must be marked with the Cub Scout's assigned car number. Number must be placed on front of the car.
3. **Attendance:** Only the Cub Scout may enter his car. This means that the Cub Scout must be present at race time(s) to race his car. If the Cub Scout is not present at the semi-final round, the next runner up from that group may race instead.
4. **New Work:** Construction of all entries must not have begun before this year's distribution of kits. This means new cars only, not cars from previous years.
5. **Inspection:** Each entry must pass inspection by the race committee before it may compete. The race committee has the right to disqualify any car at any time which does not appear to conform to these rules. Car owners will be informed of the violation(s) and may then resubmit the car for inspection, at the discretion of the race committee. The car will be impounded immediately upon successful inspection.
6. **Appeals:** Any scout has the right of appeal to the race committee for rule clarification. In the case of a tie vote the decision of the race committee chairperson will prevail. All decisions are final.
7. **Conduct:** Un-scout-like, ungentlemanly, or unsportsmanlike conduct by any competitor or member of the audience will be grounds for expulsion from the competition and/or the race area.
8. **Track Area:** Only race Committee Members and Boy Scout Helpers will be permitted in the track area. Only non-pack parents will be permitted to handle cars.

EVENT: DESIGN COMPETITION

1. **Qualification:** All entries must adhere to the technical specifications outlined in the Fastest Car Competition and pass inspection. Cars will be judged by members from the audience at large selected at the discretion of the race committee.
2. **Judging:** Cars will be judged on Most **Patriotic**, Best Scout **Theme**, Most **Original** (Most Like a Real Race Car), and Most **Unusual**. Judgment is based on the Cub Scouts' abilities (not their parents'). Voting will only be by those boys entered in the race. The race committee will vote separately on the **Best of Show**.



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EVENT: FASTEST CAR

1. **General:** Race committee officials are responsible for fair and proper conduct of the races. Each round of races is a series of heats. The number of heats is determined by the number of racers present in that round. The number of placed finishes during the round's heats determines ranking. The racers with the most number of first, second and third place wins will advance to the next round. All ties will be decided by runoffs.
2. **Qualification:** No scout may enter more than one car.
3. **Technical Standards:** The inspection judges at check-in are responsible to evaluate each entry's adherence to the following technical standards. Adherence to these specifications is the responsibility of the race car builder.
4. **Material:** Race cars shall be primarily constructed from the parts contained in the kit as provided by the pack (wood, wheels, and axles). These parts may be supplemented with "BSA" approved parts but not replaced.
5. **Replacement parts:** All required replacement parts must be obtained from the race committee.
6. **Weight:** Race cars may weigh no more than 5.0 ounces (total weight) as determined on the official scale during inspection. The car may be hollowed out and built up to the maximum weight by the addition of materials such as wood, plastic, or metal, providing they are securely built into or firmly affixed to the car (e.g. permanent glue, nails or screws). No "sticky substances" are to be used (e.g. tape or tack spray). Weights shall be passive (e.g. non-movable, nonmagnetic, non-electric, non-sticky, etc.). Mercury is not permitted.
 - a) **NOTE:** Race cars for siblings can weigh no more than 4.0 ounces (total weight) as determined on the official scale during inspection.
7. **Wheels and Axles:** The car shall roll on the wheels from the kit. It must be obvious to the judges that the car conforms to the following guidelines:
 - a) The wheels and the axles from the kit must be used. (You may substitute with **ONLY "BSA" approved parts**). **They must have the letters BSA on them and be solid only.**
 - b) The axles shall be firmly affixed to the wood of the car body.
 - c) Axles may be polished.
 - d) Wheels may be lightly sanded.
 - e) Wheel alterations are prohibited (e.g. beveling, tapering, thin sanding, wafering, grooving, etc...)
 - f) The tread must be flat across.
 - g) Wheel bearings, hubcaps, washers, insert, sleeves, bearings, and bushings are prohibited.
 - h) The car shall not ride on any type of springs.
 - i) The car must be freewheeling with no starting devices or other propulsion.

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8. **Size:** Race cars will be measured by the official gauges during inspection and must conform to the following dimensions.
 - a) Race cars may be no longer than 7 inches overall
 - b) Race cars may be no wider than 2 3/4 inches, including wheels and axles.
 - c) Race cars may be no higher than 4 1/4 inches.
 - d) Race cars must have a minimum underside clearance of 3/8 inches.
 - e) Race cars must have a minimum inside wheel to wheel clearance of 1 3/4 inches.
 - f) Race cars must maintain the kit's original wheel base (distance between front and rear axle) and placement (distance from the edge to one axle).
9. **Paint and Finishes:** Cars with wet paint or other finishes will be disqualified.
10. **Lubricants:** Must be dry graphite only.
11. **Staging:** The entire car must stage behind the starting pin. Do not shape the front of the car like a "V" or it will not stage properly.
12. **Body:** The car must have no moving parts.

Scouts and PARENTS should also be familiar with these race management rules.

1. **Inspection Gauges:** All inspection will be conducted by the race committee members using scales and gauges approved by the race committee. Scouts (with the assistance of the race committee members) should be prepared to make adjustments to their cars as required.
2. **Impounding:** Once the car has passed inspection, the scout will place his car in the area provided, and must not lubricate or remove the car until race time.
3. **Car Handling Responsibility:** Scouts shall be responsible to stage their own cars at the starting line, to retrieve their cars at the finish line (after the race has been called) and return their cars to the pit after the heat is finished. If in the opinion of the race committee, a scout's physical limitations preclude his compliance to this requirement, the scout may nominate an assistant of approximately the same age who will serve subject to race committee approval. In any case, the scout shall participate up to his limitations.
4. **Lane Assignment:** The initial lane assignment for each heat shall be determined by lot; subsequent races in that heat by rotation.
5. **Car Repair:** If, during the race, a car becomes damaged, the scout may perform repairs to the best of his abilities with assistance from race committee personnel only. If the car is damaged due to track fault or due to the fault of another car, additional assistance may be sought through the race committee.

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6. **Car Interference:** If during a race, a car leaves its lane and, in so doing, interferes with another racer, then the race will be re-run (However, see #9 below). If that car interferes with another racer during the re-run, then the offending car shall be deemed to have lost the race. The race will be re-run without the offending car.
7. **Car Leaves Lane:** If during a race, a car leaves its lane but proceeds down the track in a manner that does not interfere with its opponents, then the race will be called as it stands (However, see #9 below).
8. **Car Leaves Track:** If during a race, a car leaves the track without interfering with its opponents, it shall be considered to have ended the race at the point that it left the track (However, see #9 below).
9. **Track Fault:** If a car leaves its lane, the race committee may inspect the track and if a fault is found, the race may be re-run after the track has been repaired.
10. **Call to Race:** Competitors will be called to race by group according to the posted schedule. Please arrive early.
11. **Appeals:** The Cub Scout must make all questions of rules interpretations, procedure and fact to the race committee promptly. All race committee decisions are final.
12. **Heat Champions:** The number of cars advancing is at the discretion of the race committee based on the number of participants. All ties will be determined by runoffs. After the runoff, if the cars are still tied, use average speed as the tie-breaker. The advancing cars from each heat will be impounded until the start of the next round of competition. Repair as necessary and lubrication may be performed solely by the Cub Scout, and will be permitted prior to the start of subsequent rounds.
13. **Scoring:** All races will be scored by the race committee using an electronic finishing device.

