

Occoquan District Pinewood Derby Rules--2013

Expectations

- Pinewood Derby is the highlight of the year for many Cub Scouts (and their families). This set of rules is designed to ensure boys have the chance to compete in a fair and fun environment. Because building Derby Cars involves the use of sharp tools, messy supplies and requires skills that may be new to the boys, it is assumed and expected that they will require some level of adult guidance and assistance in the building of their cars.
- It is up to each family to determine the right level of assistance to ensure their boy has a safe and rewarding experience building and racing their cars. We've all heard stories of or seen examples of cars that were built by well-meaning dads/grandfathers/friends that the boys barely recognized on race day. We've also seen cars that were clearly built solo by boys that barely made it down the track. Either experience takes the fun away from the Scouts. We expect Akelas to ensure the boys participate to the maximum extent possible in the design, building, and painting of their own cars.
- The primary purpose of the check-in inspection is to ensure that the cars can safely operate on the track. Compliance with the rules cannot always be verified by the race judges. We assume integrity by the boys and the Akelas. No boy should gain unfair advantage by exceeding the parameters laid out here. These are far from the strictest set of Pinewood Derby Rules in use today. They provide ample opportunity to experiment with different designs and teach the boys some of the math and science that goes behind making a car fast. We hope that Akelas will help the Boys take full advantage of the learning opportunity, and ensure that they stay fully within the rules.
- Most of all, we want the Boys to have fun. Good sportsmanship is the most important rule of the day. **At no time will the competitive aspect of the Derby be allowed to get in the way of fun.**

Eligibility of Contestants and Cars

- The 2013 Occoquan District Pinewood Derby is open to actively enrolled Scouts from any Pack in the District. Each Pack may select three boys to represent them at the District Race. Ideally, they will be the top three cars from the Pack Pinewood Derby, but the district leaves it to the judgment of the Pack Leadership to make accommodations as necessary. In case of illness or a valid conflict a sibling or another Cub Scout (not otherwise participating) may represent an absent scout.
- Cars in the 2013 Pinewood Derby must have been made for this race season. Construction should have taken place between May 2012 and the day of the Race. Do not race a car built for a previous year's Pinewood Derby.
- Derby cars are powered by gravity. That's it. No motors, no magnets, no rockets. Enough said!

Materials

- The basic structure of a Derby Car must be the rectangular block of wood from an official Pinewood Derby Kit. BSA is now producing pre-cut car shapes. These and other non-BSA kits CANNOT be used.



Pre-cut Pinewood Derby Cars are not allowed. Don't be confused by the BSA logo

- The car may be painted, carved, sculpted, and sanded in order to enhance performance and/or appearance.
- Other materials may be added to the basic structure for appearance. Examples include fins, windscreens, tailpipes, racers, pieces of Lego, coins, weights, etc... The car still must conform to the size standards below. Any accessories that cause the car to exceed these standards will need to be removed before the car can compete.
- Only official Pinewood Derby axles and wheels may be used. They do NOT need to come from the specific kit that the block of wood came in, but they must have been produced by BSA and they must be marked with the BSA logo to be official. BSA has new color wheels that you can buy separate from your car kit. These may be used. Other companies produce wheels that are like BSA wheels. These may NOT be used because their weight and other properties are too different from BSA wheels. In particular, watch out for wheels designed for Awanna races. These have open spaces between their spokes (BSA wheels are solid). If you can see through the wheels, they will not pass inspection.
- Wheels may be sanded to smooth the tread and clean up other minor imperfections. Sanding and polishing may NOT change the tread shape, round the corners, or reduce the contact area of the wheel. Additionally, sanding/polishing may NOT be done with the intent of reducing the weight of the wheel. The wheel bore may be polished to reduce friction at the axle.

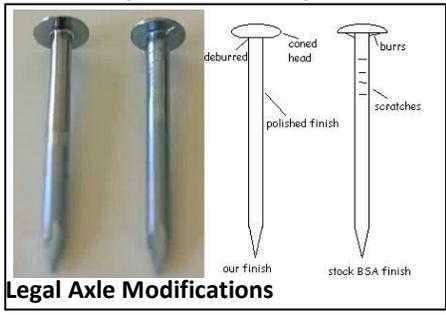
WHEEL PROFILE EXAMPLES

What is and is not acceptable when preparing your Pinewood Derby Car wheels for the race? The graphic shown below demonstrates the correct shape for your wheels to use when coming in contact with the track – **flat and squared off at the edges.**



Cool car, but open wheels are ineligible. These are probably Awanna Wheels.

- Most BSA Axles have a small burr near the head of the nail. It is highly encouraged that Akelas help boys file this off. It will definitely slow the car down if it is not removed. The axles may also be polished. The axel head may be shaped slightly to better fit in the bore of the wheel. The axles may NOT be shaped in any manner designed to reduce contact area between the wheel and the axle. This significantly reduces friction between the wheel and axle and gives the car an unfair advantage. Some non BSA Derby kids use a solid axle that runs the full width of the car and is used to mount two wheels. This is also NOT allowed.
- Springs and bearings are not allowed on the wheels or axles.

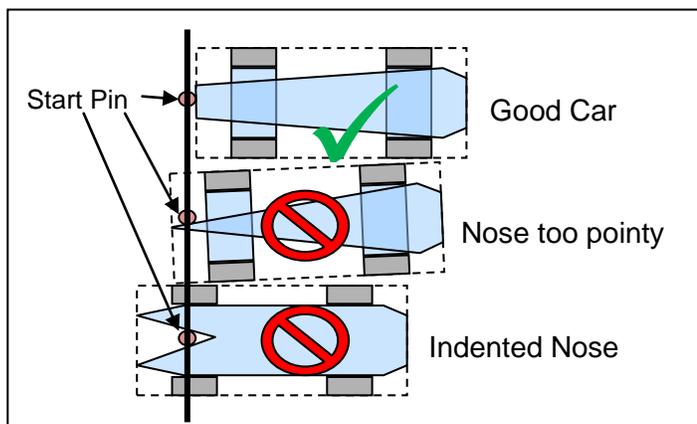


Length, Width & Clearance

- Minimum clearance between the bottom of the car and track is $\frac{3}{8}$ ". This ensures the car will clear the center guide strip. This is a critical measurement. Do not have excess glue or weights hanging below the car body.
- Maximum overall width (including wheels and axles) must be less than $2\frac{3}{4}$ "
- Minimum width between wheels is $1\frac{3}{4}$ ". This ensures the car will clear the center guide strip.
- Maximum length (including wheels and accessories) cannot exceed 7".
- Maximum height may not exceed 5".
- There is no restriction on wheelbase (distance between the front and rear axles, center to center). The pre-cut slots do not need to be used. If you chose to drill alternate holes for the axles, ensure they preserve the minimum $\frac{3}{8}$ " clearance below the car and that they are not so far forward or aft on the car to extend its overall length beyond 7".
- Each car must have four wheels, but it is not necessary for all four wheels to touch the track. Some racers believe that lifting one wheel may make the car faster. This fourth wheel may be positioned on the car slightly above the others so that it is not in contact when the car is on a flat surface. It should be close enough to provide stability as the car goes over imperfections in the track. All cars must be stable as they race down the track. If a car with a raised wheel is not stable on the track, it may be disqualified from the race.

Weight and Appearance

- Total car weight may not exceed 5 ounces. The readings of the Pack 295 Race Scale will be considered final. Be prepared to make minor adjustments if necessary during inspection.
- No loose materials of any kind are permitted on or inside the car.
- Additional materials may be added to the car for the following purposes:
 1. Weights may be added to bring the weight up to the 5 ounce limit and/or to alter the weight distribution of a car.
 2. Paints/decals/decorations may be added for appearance and/or aerodynamics.
 3. Fenders or fender flares can be added to partially enclose the wheels. These can be plastic or come from scrap pinewood blocks. They must not interfere with free rotation of the wheels or cause the car to exceed the maximum width of $2\frac{3}{4}$ "
 4. Glue may be used to secure the axles to the car body. Use extreme care to avoid glue that interferes with smooth rotation of the wheels on the axles.
 5. Wood putty may be used to repair minor damage to a car.
- The front of the car must be designed to ensure it "stages" properly in the starting gate. Cars that do not stage properly will need to be modified or will be excluded from competition. Specifically:
 1. Cars with very pointed noses should also be avoided. This can cause a car to be difficult to line up on the starting gates.
 2. The center of the car must align with the forward-most part of the car. Indented noses allow a car to unfairly "stage" on the starting pin placing the car partially down the track.



Lubrication

- Only dry powdered lubricants, such as graphite or white powder Pinewood Derby Car Lubricant, may be used. Oils and silicone sprays are prohibited.
- A car may be lubricated before inspection and impound. If the car advances to Finals, the car may be re-lubricated. These are the only two times when lubrication is permissible. Specifically, cars may not be lubricated while competing in a set of heats.

Race Rules

- If a car jumps off the track, the heat will be run again. If the same car jumps off the track a second time, it will be disqualified from the heat.
- If a car leaves its lane and interferes with another car, the heat will be run again. If the same car leaves its lane a second time or otherwise interferes with another car, the heat will be run again without the interfering car. The interfering car will be disqualified from the heat.
- If a car suffers a mechanical problem and a repair can be accomplished within 5 minutes, the heat will be run again. If not, the car will be disqualified from the heat. Officials may extend this time at their discretion.

Inspections and Disputes

- Each car must pass inspection by the Official Inspection Team before it may compete. Car owners will be informed of the violations and given an opportunity to modify the car to meet these rules. The Inspection Team has the right to disqualify those cars, which do not meet the rules.
- In general, if a boy builds a car that deviates from these rules, but meets the size parameters and can race safely without interfering with other cars, he will be allowed to race his car but he will be ineligible for awards. This is an unfortunate circumstance that we want to avoid if at all possible. The judges will work with the Akelas and the boys to do anything to make a car eligible during inspections, but some violations (such as using a pre-cut car) offer no opportunity for race-day corrections.
- Ungentlemanly or unsportsmanlike conduct by any participant or member of the audience will be grounds for expulsion from the competition and/or race area.