



# Flintlock District Pinewood Derby Official Rules for 2019

The Pinewood Derby has been a part of the Cub Scout Program since 1953. As its popularity has grown over the last 65 years, the Pinewood Derby has evolved and different Councils have adopted different rules for competition. To ensure that this event is truly representative of all Cub Scouts and allows all qualifying Scouts to compete on an equal racing field

## **Participation Qualification:**

Competition in the Flintlock District Pinewood Derby is open to all 2019 Cub Scout Pinewood Derby Finalists. Finalists are male and female Cub Scouts that finished in their respective rank (Lions Tiger, Wolf, Bear, Webelos I, AOL) within their local District or Council Championship Race. The youth must be a registered Cub Scout at some point since January 1st, 2019. Scouts that began the calendar year as an AOL Scout and have since transitioned to a Troop are eligible to compete.

## **Check-in:**

Each car entered in a championship race must pass inspection by the Flintlock Inspection Committee on race day. A Basic Inspection will be performed on all cars and determine a car's eligibility to competitively race in the Pinewood Derby.

After successfully passing Basic Inspection, the car will be inspected for conformity to specifications. If the car passes the Inspection, it will be labelled and entered into a race round. The racer will be called to the Check-In table and provided car and race number information.

If the car does not pass inspection the racer will be called to the Check-In table to discuss options. If remediation is chosen and performed by the racer, the car will be fully re-inspected.



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For purposes of this document, an Inspection Cycle is defined as a car's progression through inspections. To insure reasonable event flow, a car will be allowed only 3 inspection cycles in succession; the first initial inspection and then two re-inspections. If further modifications are desired by the racer, the Reinspection Lane will not be available, and the racer will return to the end of the registration process and wait for all other participants to check-in. This can be repeated as many times as desired by the racer.

Officials have the right to disqualify any car, racer, or racing team that does not meet all of the stated rules and specifications or displays un-scouting like conduct. A Scout is Trustworthy, Loyal, Helpful, Friendly, Courteous, Kind, Obedient, Cheerful, Thrifty, Brave, Clean, and Reverent. The Official's decision is final.

After a car has passed inspection, it will be placed in a series of designated staging locations. It will remain in the possession of the Pinewood Derby Staff until all races have been completed, results have been tallied, and design judging finalized. Check-in/Check-Out Staff will be kept informed of potential speed or design trophy contenders, and only Race Officials will handle the car until the final Award has been completed. This process is typically 30 – 45 minutes after a racing round but can be extended depending on circumstances.



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## Basic Car Specifications

### Dimensions and weights:

- Cars must have been built during the 2018-19 Pinewood Derby racing season (September 2018 through June 2019) using an Official BSA Pinewood Derby Kit or official BSA components purchased through an authorized BSA retailer such as a Scout Shop. Non-official BSA parts sold by an official BSA retailer are prohibited. Aftermarket car kits, non BSA precut kits, or cars purchased whole or in part from another racer, company, internet entity, or other are prohibited. Cars must be constructed by the racer and an adult, Scouts honor.
- Width, including wheels, axles, and any fenders or cosmetics, must not exceed 2¾ inches (6.99cm).
- Length shall not exceed 7 inches (17.78cm). If fenders are present, they can not extend beyond the front or rear car body.
- Weight shall not exceed 5.0 ounces (141.75 grams) measured on a scale accurate to 1/10<sup>th</sup> of an ounce. Overweight cars must be reduced to running weight or below before they can be entered. The official race scales shall be considered final.
- Cars must clear the center rail of the track, which is 1 5/8 inches wide by ¼ inch tall along the entire length of the car. Minimum clearance between the entire bottom of the car and the bottom of the wheels shall be 3/8 of an inch.
- No part of the car may protrude beyond the track start gate starting pin. The front edge of the car must not be more than 1 inch above the track surface and be at least 1/2 inch wide at the center of the car.
- Any details added must be within length, width, and weight limits.
- All cars must have a wheel base no less than 4 inches (101.6 mm), with the two rear wheels being positioned directly across the body from one another and the two front wheels being positioned directly across the body from one another. Wheels cannot extend beyond the front or rear of the car body proper. The car body proper is defined as the contiguous wood body itself and excludes attached wood parts, accessories of any material, or decorations. As an example, a bumper shaped from the original wood block that has not been dissected from the block and reattached is part of the car proper. A bumper that was cut away from the block and reattached is not part of the car proper.
- No part of the car or any attachment to the car may be capable of coming into contact with the track other than the wheels.

### Examples of Prohibited Items which CANNOT be used:

- Any type of magnets, springs, washers, bearings, bushings, nylon shims, axle guards, wheel weights, wheel well weights, inner wheel air dams (also known as air deflectors or air shields), inner or outer wheel covers – clear or otherwise, or any item internal or external to a factory BSA wheel, moving weights, liquid lubricants actively wet or dried, or suspension systems of any type.
- Any item not included in an official BSA Pinewood Derby Car Kit or not purchased through an authorized BSA retailer, except cosmetic items or fenders. Aftermarket axles are not permitted.
- Starting devices, finish line devices, propellants, or propulsion systems.
- Wet paint, sticky substances, glass, excessively fragile parts, electronic or lighting devices (if lights are on the car they must be turned off).
- Bearings or solid one-piece rod style axles or aftermarket purchased axles.
- Axles and wheels attached to any device that mechanically alters rotation or spin.
- Loose objects on or in the car. All weight must be securely fastened or embedded in or on the car.



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## **Wheels and Axles:**

- Use of only Official BSA Wheels from an authorized BSA retailer; colored wheels are permitted.
  - Only official BSA wheels from an authorized BSA retailer can be used. Note, wheels with the letters BSA and China or any other indication other than a standard BSA wheel from a BSA authorized retailer is not permitted.
  - All lettering and numbering, both inside and outside, must remain complete and unaltered from factory diecasting, and be completely visible with no obstruction of any kind. No wheel covers of any type or any name, inside or outside, may be used.
  - The fluting and other BSA markings on the outside wheel area must remain visible and unaltered.
  - Outer wheel surface (tread area only) may be LIGHTLY sanded, shaved, or polished to remove minor surface imperfections, mold casting burrs, and correct off center wheel bores; but total wheel diameter may not be reduced below 1.170 inches (29.72mm). Outer wheel surface must not be reshaped or have the contour changed in any way in an attempt to minimize tread contact or alter aerodynamics. Wheels with ANY flex to the tread or sidewall when squeezed or twisted in inspection will not pass. Lathing outer wheel tread is allowed within the confines of the above specs.
  - Tread surface must be flat and parallel to the wheel bore and have a thickness of 0.036 inches consistently across the tread.
  - Wheels may not be reversed (hub facing away from the car body) and must be mounted in standard position.
  - Coning the hubs and truing the inside tread edge is allowed, as long as overall wheel width is not reduced below 0.36 inches (9.14 mm).
  - NO MATERIAL may be removed from the inside wheel tread, sidewall, hub surfaces.
  - Minimum outside diameter of wheel must be equal to or greater than 1.170 inch (29.72mm), and must maintain the ridges on the outer edge.
  - Inspectors reserve the right to measure the wheel with calipers to verify dimensional compliance with official wheel size restrictions. If graphite is not present or oil is suspected, graphite will be applied to all wheels.
- The weight of the wheel shall not be increased or decreased. No material such as glue, fingernail polish, or tape, may be added to the inside of the wheel increasing its weight.
- Wheel Bore treatment is allowed including polishing and/or tapping. Wheel bores may not be filled and re-drilled to alter bore diameter or to achieve better fit with the axle (no material may be added to the wheels).
- Axles may be canted for alignment purposes.
  - Axles may not be bent.
- If axles are suspect, the racer will be asked to pull them for inspection and that racer will be responsible to re-install them.

Please note: There are after-market modified wheels available that have been LIGHTENED. This is usually done by turning the wheels on a lathe and removing material from the inside of the wheel. These wheels are NOT allowed and can be EASILY RECOGNIZED at inspection. Cars with third party manufactured or modified wheels will not be permitted to race.

Wheels determined by the Inspectors to be out of compliance must be replaced to compete.



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The following diagram offers wheel measurements and examples of disqualifying wheel modifications.

## CLARIFICATION OF DISQUALIFYING / ALTERED WHEELS

No alteration, narrowing, lathe cutting, or re-shaping of wheels (inside or outside) is allowed!!!!

<p><b>STANDARD WHEEL</b></p> <p><b>PASS</b></p>	<b>FAIL</b>	<b>FAIL</b>	<b>FAIL</b>	<b>FAIL</b>	
	ROUNDED WHEEL	"V" WHEEL	CUPPED WHEEL	REDUCED DIAMETER	
<b>FAIL</b>	<b>FAIL</b>	<b>FAIL</b>	<b>FAIL</b>	<b>FAIL</b>	<b>FAIL</b>
"H" WHEEL	RIBBED WHEEL	SPEED WHEEL	SLANTED OUT	SLANTED IN	KNIFE EDGE

### NO LIGHTENING OF THE WHEEL IS ALLOWED

LIGHT SANDING OF WHEEL TREAD TO REMOVE IRREGULARITIES IS PERMISSIBLE. WHEEL TREAD MUST BE FLAT!

MINIMUM WHEEL DIAMETER ALLOWABLE IS 1.170 INCHES.

MINIMUM WHEEL WEIGHT OF EACH WHEEL IS 2.45 GRAMS.

As a point of reference, below is an image of Official BSA wheels and axles purchased at an official BSA retailer.





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## Wheels, Axles and Suspension

### (in addition to Basic Car Specifications):

- All Basic Car Inspection rules and specifications apply.
- The Stock Car Division is intended to maintain a level of competition of which most boys are capable of achieving with minimal adult intervention. This division is the essence of the Pinewood Derby and in the sense of fair play we've kept the rules simple. Any car that passes the basic qualifications above but doesn't pass the Stock Car rules will be subject to Pro Stock inspection.
- Only official BSA Pinewood Derby Kit wheels, or official BSA wheels purchased from an authorized BSA retailer, and BSA axles may be used. Wheels may be lightly sanded to remove any mold projection (also known as flash). This very light sanding is the ONLY wheel modification allowed. All markings must be intact on the inside and the outside of wheel. Colored BSA wheels are permitted.
- All 4 wheels must be in contact with the track at all times. The wheel tread does not have to be flat on the track.
- BSA axles may be polished, deburred and dry lubricated but must be left otherwise untouched – period. No lubricating oil or liquid lubricant of any kind may be used.
- Inspectors will visually inspect and use magnets to ensure BSA factory axles are present.
- Factory axle slots must be used and visible, with the factory standard 4 & 3/8 inch wheelbase. Axles are positioned 1 inch from one end (usually the front bumper), and 1 & 5/8 inches from the other (usually the rear bumper). Slots may be trued or straightened. Axels cannot be drilled into the car body proper with the exception of into the factory slot. A factory slot may be filled with wood putty or other material and drilled only for axle placement.
- NO RIDGE RUNNERS**
- The tip of the nail axle must be visible to allow inspectors to verify nail axles are being used.



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## Race Operations and Miscellaneous Rules:

- If a car suffers a mechanical problem during a race (i.e loses an axle, breaks a wheel, etc...), the participant and/or a designated adult will have up to five minutes to fix the car. The race will NOT be rerun, nor can ongoing races be delayed.
- If a car leaves the track during a race, the race will be rerun. If the same car leaves the track a second time during the race, Official's will add 0.1 seconds in that race.
- If a car leaves its lane, Race Officials, at their discretion, may inspect the track and, if a track fault is found which may have caused the initial violation, the Race Officials, at their discretion, may order the race to be rerun after the track is repaired.
- In the event of Starter interference, the race will be re-staged and rerun.
- The track's electronic timers will record finishing place for all cars in each race. In the event of technical difficulties, the Official Race Committee will determine the order of finish.
- In the event of a mid-race timer failure, the Official Race Committee will determine the best approach to racing based on the circumstances. All decisions of the Official Race Committee are final.
- Only Track Officials will be permitted in the track area.
- Track Officials are responsible for the proper conduct of the races. Good sportsmanship and behavior is expected for all attendees. Race Officials may ask anyone not following this rule to leave.
- Please make note that all decisions of the Official Race Committee are final.



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## **Race Methodology:**

### **Regular Racing**

- Each car will have 4 races 1 on each lane the cumulative time for all 4 races determines the final time for each car.
- The accumulation of heat times will determine the standings for each racer.
- Racing Rounds will be created based on attendance, check-in and inspection order, and other event and logistic factors.
- At the conclusion of a Round, that Round's standings will be displayed on the video wall. Multiple Rounds in a Racing Series may be required to accommodate all entrants.
- At the conclusion of regular racing, data from all rounds will be combined.

### **Determining Regular Racing Winners**

- The top 4 fastest cars from each Rank will be crowned the winners and receive trophies. This will be the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> place Lions, Tigers, Wolves, Bears, Webelos I's, & AOL

### **Winner's Cup Runoff – "Fast 15 Finale" **Used for Packs not District Racing****

- In the Stock Car Series, the top 3 fastest cars from each Rank (Regular Race Winners) will compete for the overall 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> place Stock Car Series champion. This is an elimination race where all 15 cars race on one track to determine the top 8. The top 8 race to determine the top 4. The top 4 race one last time to get the fastest Stock car.





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