

Christian Heritage - Pinewood Derby

Purpose: This is a fun filled family activity to learn and practice basic concepts of design, engineering, creativity, woodworking, decorating, fellowship, and competition.

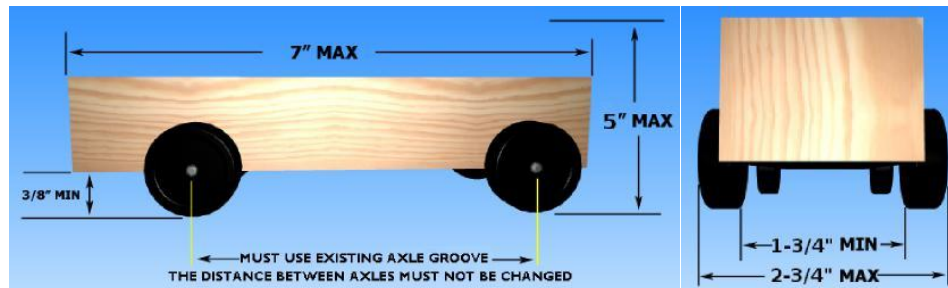
Disqualification: Each Racer is responsible to understand and follow these rules. Some Racers may need a “parent partner” (see RULE 2.9) to help them understand these rules. It would be heartbreaking to work hard on a car and then have it **disqualified** for a rule violation.

RULE 1: GENERAL RULES & REGULATIONS

- 1.1 **Who May Race:** Anyone may design, build, and enter cars into the Pinewood Derby based on age categories. ([Helpful link on building a Pinewood Derby Car](#)).
Divisions: There are three divisions.
 - a. **Junior Division:** Ages 6-11
 - b. **Senior Division:** Ages 12-17
 - c. **Adult Division:** Ages 18+
- 1.2 **Essential Materials:** Pinewood Derby Car kit that consists of: 1 block of wood, 4 wheels, 4 axle nails, and weights. Cars must be made from these materials and cannot be substituted for other materials, except as noted in RULE 2.
- 1.3 **Attendance:** On race day, the Racer **MUST** register their own car for the competition and be present at the *Inspection and Registration* stage to enter their car into competition. They must be present during the race to win awards.
- 1.4 **New Car:** The car must be constructed from a kit meeting the specification below. **No pre-cuts are allowed.**
- 1.5 **Inspection:** No car may be altered in any way after it has been inspected & impounded. Racers will receive their cars back after the race is completed.

RULE 2: CARS

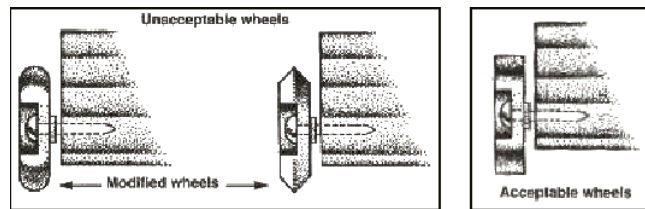
- 2.1 **Overall Car Specifications:** It is important to follow these specifications because cars may have difficult racing on the track if these measurements are not followed.



- a. **Maximum Overall Width:** Outside edge-to-edge of wheels is $2\frac{3}{4}$ "
- b. **Minimum Width between wheels:** $1\frac{3}{4}$ "
- c. **Wheelbase:** The distance ($4\frac{3}{8}$ ") between axle nails must NOT be changed.
- d. **Maximum Length:** 7"

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- e. **Maximum Height:** 5"
 - f. **Minimum Track Clearance:** Bottom clearance between car and track is 3/8"
 - g. **Front Bumper:** The bumper must be straight and at least 1" wide in the center of the car. Narrow "U" and "V" shapes are not allowed because they will not make proper contact with the starting pin. Nothing can extend beyond the front bumper of the car. The front bumper is placed against the "starting pin" on the track at race time.
 - h. **Maximum Weight:** 5.000 Ounces (141.75 grams)
- 2.2 **Body:** The block of wood must be used as the main part of the car. Add-ons are allowed if the car adheres to the overall car specifications mentioned above. Cars may be sawn, drilled, painted, decorated, glued, and hollowed out as desired. Kits are commonly found at craft stores and online. Some options for Pinewood Derby Kits are [Hobby Town](#), [Oakridge Hobbies](#), [hobbylinc.com](#), and [Buscher Bros](#). **No pre-cut blocks of wood are allowed.**
- 2.3 **Weight:** The overall weight of the car cannot exceed 5oz. Liquid weights are not allowed. Weights must be securely fastened to the car with either glue, nails, or screws. "Sticky substances" are not allowed, such as tape or tack spray. However, official Pinewood Derby Car "stick-on weights" may be used. Weights must be non-moveable and non-magnetic.
- IMPORTANT:** *It is strongly recommended that you obtain a scale that can weigh ounces.*
- 2.4 **Wheels:** It must be obvious to the Race Officials that the wheels included in the kit were used and were attached to the axle nails provided, with these additional requirements.



- a. Each car must have 4 wheels.
 - b. All four wheels must be in contact with a flat surface when the car is placed on it.
 - c. Wheels must be aligned so that the complete surface of the wheel is in contact with the track (not cambered in or out).
 - d. Wheels may not be cut, drilled, shaving, beveled, tapered, thin sanded, wafered, lathe turned or rounded; however, wheels may be gently sanded to remove molding burrs. Some of the original "tread marks" on the wheel face must remain intact, i.e. apparent to the Race Officials.
 - e. Hubcaps, washers, inserts, sleeves, bearings, and wheel covers are not allowed.
- 2.5 **Axle nails:** It must be obvious to the Race Officials that the axle nails included in the kit were used and attached to the block of wood provided, with these additional requirements.
- a. The axle nails will be firmly affixed in the pre-cut grooves under the body of the car.
 - b. The axle nails may be altered only in a manner so as to remove the metal mold imperfections near the nail head, if any.
 - c. Axle nails may be polished and lubricated.

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- d. Axle nails may not be angled in the car body slots in a manner that would cause the wheel not to run flat to the surface of the track.
 - e. Axle nail heads and shaft diameter may not be modified or reduced.
- 2.6 **Lubricants:** Wheels and axle nails may be lubricated with these requirements:
- a. Only WHITE TEFLON LUBE or DRY POWDERED GRAPHITE may be used.
 - b. No liquid lubricants will be allowed.
 - c. Lubrication will only be allowed prior to registration. However, if a wheel or axle nail needs to be repaired during the race, only the replacement part may be re-lubricated under the supervision of a Race Official. Once a car has completed one heat then it will not be re-lubricated.
- 2.7 **Unacceptable Construction:** No loose materials of any kind are permitted in or on the car. This could pose a hazard to other cars during the heat and could **disqualify** your car.
- 2.8 **Gravity Powered:** No external sources of power, magnets, engines, jets, compressed air, springs, propulsion systems other than gravity may be used. The car must be freewheeling with no starting devices.
- 2.9 **Parent Partner:** Parents may partner with their child to build the child's car. Remember, this is the child's car. The goal is that much of the work is done by the child. We encourage parents to enter their own cars in the Adult Division.
- Children should design the shape of the car.
 - Children should sand the car.
 - Children should assemble the car.
 - Children should decorate and paint the car.
 - Children must be present when the car is racing.
 - Parents may cut out the car if it is too dangerous for the child.
 - Parents may use tools that might be dangerous for children to use.
 - Parents may attach the fragile wheels and axle nails.
 - Parents are responsible for understanding the rules.
- 2.10 **Outside Help:** There are books and websites that cover the science of Pinewood Derby Cars. Racers can seek outside advice to create their cars, but the work must be completed by the Racer and these rules must be followed. ([Helpful link on building a Pinewood Derby Car](#)).
- 2.11 **Repairs:** Racer should have extra wheels, axle nails, lubricant, and tools available on the day of the race.

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RULE 3. RACE DAY

- 3.1 **Race Area:** The area for the track and cars will be corded off. Only those authorized are allowed within the Race Area. All other Racers and spectators must stay outside this race area.
- 3.2 **Inspections:** All cars must be inspected prior to racing to ensure they meet the requirements stated above.
- 3.3 **Race Day Lubrication:** Cars may be lubricated prior to inspection. Cars will not be lubricated between heats, except as noted in these rules.
- 3.4 **Disqualification:**
- Car Leaves Lane:** If, during a heat, 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 normally. A car must reach the finish line to complete a heat. The heat will not be re-run.
- If a car leaves its lane and interferes with another car, the Racer will be given time to inspect and/or repair their car, re-qualify, and the heat will be re-staged and re-run.
- If the same car leaves its lane again and interferes with another car, that car will be **disqualified** from any future races and will not be considered for awards. The race will be re-staged and re-run without that car.
- Car Leaves Track:** If, during a heat, a car leaves the track without interfering with its opponents, the Racer will be given time to inspect and/or repair car, re-qualify and the race will be re-staged and re-run.
- If the same car again leaves the track without interfering with its opponents, that car will be **disqualified** from any future races and will not be considered for awards. The race will be re-staged and re-run without that car.
- 3.5 **Car Repair (Without Fault):** If, during the race, a wheel falls off or a car becomes otherwise damaged, the Racer may, to the best of their ability, perform repairs with the assistance of their parent partner. They will be allowed time to perform repairs and be re-qualified.
- 3.6 **Car Repair (With Fault):** If a car is damaged due to track fault, or damage caused by another car or person, the Racer may, perform repairs and be re-qualified.
- 3.7 **Repairs:** Racer should have will have extra wheels, axle nails, lubricant, and tools available on the day of the race.
- 3.8 **Heats:** Cars will race several times across divisions. Each race is called a heat. Each car will race four times, once down each lane of the track. The track has four lanes.
- 3.9 **Divisions:** There are three divisions.
- a. **Junior Division:** Ages 6-11
 - b. **Senior Division:** Ages 12-17
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RULE 4: AWARDS

- 4.1 **Timed Awards:** These awards go to Racers who are not **disqualified**.
- a. **Race Champion:** Goes to the fastest car across all divisions.
 - b. **Runner-Up:** Goes to the second fastest car across all divisions.
 - c. **1st, 2nd, 3rd Place by Division:** Goes to the fastest cars in each division.
 - d. **Safest Racer:** Goes to the slowest car across all divisions.
- 4.2 **Car Awards:** These awards are voted on for all Racers across all divisions. Cars that have been **disqualified** are eligible for these awards.
- a. **Best Name:** Goes to the car with the best name.
 - b. **Best Accessorizer:** Goes to the car with the best accessories.
 - c. **Best Design:** Goes to the car with the best construction and paint job.
 - d. **Best Paint Job:** Goes to the car with the best paint job.

STAGES

There are several stages to the event. This list will help you understand where you are in the process.

1. **Purchase a Pinewood Derby Car Kit:** You decide where to purchase your kit that meets the rule requirements listed above. (No pre-cut kits allowed.) Christian Heritage will not provide kits.
2. **Design/Build/Decorate:** Carefully plan the design and how it should be decorated. This is the hardest step, but the work pays off.
3. **Inspection:** On race day, deliver your car to the Inspectors. They will verify that you followed the car specifications. If not, go back to ensure your car meets the specifications in RULE 2.
4. **Impoundment:** After your car passed inspection, your car will be impounded but will be returned when the race is over.
5. **Qualification:** The Start Gate Officials will run your car down the track one time to ensure it can make it to the finish line. Your car must make it to the finish line to receive an official race time.
6. **Heats:** The Start Gate and Finish Line Officials will start racing your car against other cars in their division.
7. **Winner:** You made it to the end and possibly receive one of many awards. Great job, Racer!!!