

**Information comes from PinewoodDerby.org**

### **Take Your Place in History**

Join the ranks of millions of Cub Scouts who have stood in the derby winner's circle. Cub Scouts just like you have been building their own cars and competing in Pinewood Derby® events since 1953! At the heart of this event's success is the process itself - bonds are strengthened as the Cub Scout partners with a parent or adult mentor to design, carve, paint, weigh, refine, and race the car. In addition, Cub Scouts build confidence and take pride in their own growing skills and hard work. So enjoy the ride!

### **Results that Last a Lifetime**

While the exhilaration of the actual race lasts only moments, the Pinewood Derby® experience lasts a lifetime. The benefits, for Cub Scout and adult, are discovered through the derby process itself: strengthening bonds, sharing responsibility, developing teamwork, learning new skills, exercising creativity, building sportsmanship, and making new friends.

Racing in the Pinewood Derby® creates a bond between a Cub Scout and all those who have raced before, as well as those who will follow to participate in this same tradition. Walk up to any Boy Scout - youth or adult; if he participated in a derby, his memories will resemble those of all other participants in the history of the event.

### **Sportsmanship - The Big Win**

The father of the Pinewood Derby®, Donald Murphy, described his vision for the event to Scouting magazine in 1999: "I wanted to devise a wholesome, constructive activity that would foster a closer father-son relationship and promote craftsmanship and good sportsmanship through competition." As Cub Scouts learn the skill of good sportsmanship, they are better able to recognize and appreciate the new skills they've acquired, to show respect to all those involved, and to experience the fun and excitement of competition.

### **History**

The first Pinewood Derby® was held in 1953 by Cub Scout Pack 280C of Manhattan Beach, California, operated by the North American Aviation Management Club. It was the brainchild of Cubmaster Donald Murphy. The derby, publicized in Boys' Life in October 1954, was an instant and enduring hit. The magazine offered plans for the track and car, which featured "four wheels, four nails, and three blocks of wood."

The rules of the very first race stated: "The Derby is run in heats - two to four cars starting by gravity from a standstill on a track and run down a ramp to a finish line unaided. The track is an inclined ramp with wood strips down the center to guide the cars." The cars still roll that way today.

## Fun Facts

### Did You Know?

A fast Pinewood Derby® car can reach a speed of nearly 20 miles per hour. Pretty good for a little block of wood!

If a Pinewood Derby® car racing down the track was enlarged to the size of a real automobile, it would be speeding at more than 200 miles an hour. That's fast!

The first Pinewood Derby® was run in 1953 at the Manhattan Beach Scout House near Los Angeles when Cubmaster Don Murphy introduced the idea to Pack 280C.

Over the years, Cub Scouts have built close to 100 million Pinewood Derby® racers. That's a lot of cars!

If you lined up all the Pinewood Derby® racecars, bumper-to- bumper, they would reach more than 7,000 miles - far enough to stretch from Charlotte, North Carolina, to the North Pole!

If every Pinewood Derby® car made this year took just one run down the track, the combined distance would be from the Earth to the Moon and back. That's out of this world!

Reader's Digest magazine included the Pinewood Derby® in its 2006 Best of America list as "a celebrated rite of spring." Way to go, Cub Scouts!

No Pinewood Derby® car has ever used a drop of gasoline. Gravity rules!

## Know the Rules

If the pack is planning to participate in either district or council races, your Pinewood Derby® committee needs to make sure that their rules don't conflict with those of the district or council in order to ensure their members can participate in events at those levels.

## Sample Pinewood Derby® Rules

Each local Pinewood Derby® committee will determine rules for building and racing its pack's Pinewood Derby® cars.

Here's a sample set of basic rules taken from the BSA's Cub Scout Leader How-To Book:

All cars must pass the following inspection to qualify for the race:

1. Width shall not exceed 2-3/4 inches.
2. Length shall not exceed 7 inches.
3. Weight shall not exceed 5 ounces.
4. Axles, wheels, and body shall be from the materials provided in the kit.
5. Wheel bearings, washers, and bushings are prohibited.
6. No lubricating oil may be used. Axles may be lubricated with powdered graphite or silicone.
7. The car shall not ride on any kind of spring.
8. The car must be free-wheeling, with no starting devices.

9. No loose materials of any kind are allowed in the car.

## Safety

To ensure the highest level of success and fun in your Pinewood Derby® experience, make safety your top priority. David Meade, author of Pinewood Derby® Speed Secrets, offers useful guidelines for maintaining safety:

1. Gather your safety essentials: dust mask, goggles, and latex gloves.
2. Wear eye protection at all times.
3. Monitor Cub Scouts' use of tools.
4. Wear dust mask when appropriate.
5. Work in a well-lighted and well-ventilated area.
6. Consider wearing gloves when using sharp tools.
7. Do not wear loose-fitting clothing.
8. Do not melt lead; handle lead with care.
9. Follow all safety rules and precautions listed on the tools and products you use.
10. Keep your work area clean and organized.

## How-To Resources

There are valuable books and handy guides with detailed, step-by-step instructions on how to build a winning racer available at your local Scout shop or at [www.scoutstuff.org](http://www.scoutstuff.org), including Cub Scout Grand Prix: Pinewood Derby® Guidebook, Pinewood Derby® Designs & Patterns, and Pinewood Derby® Speed Secrets.

### Step 1: Design the Car's Body

Choose your favorite design. Outline it onto your paper template or graph paper. Remember to maintain a width of 1-3/4 inches where the metal axle is to be inserted. Then outline the bare block of wood onto the paper. Keep the design simple enough to avoid overly intricate or detailed cutting.

### Step 2: Shape the Car's Body

1. When deciding how detailed you want your car to be, keep in mind the tools you have available: saws, drills, sanders, etc. Consider safety as well. Usually, the adult makes the major cuts with the power tools and then lets the youth file and complete the sanding.
2. Check the axle grooves to ensure that each is at a perfect 90-degree angle to the car body. A car with untrue axles tends to steer to one side or the other, causing it to rub up against the side of the lane strip, slowing it down.
3. Cut away the large sections of waste wood to get close to your etching of the final design. This makes it easier to shape and detail your design. It's much harder to add wood if you overcut your original design.

4. Do not forget to have a place for weight if you need it. Weight may be placed anywhere as long as it is not taped on and does not exceed the specifications.

#### Step 3: Inspect the Wheels

1. Only the official wheels are acceptable.
2. Wheels can be sanded to remove surface imperfections, but the treads must be left flat.
3. Inspecting the wheels is important. Make sure all wheels roll freely and smoothly around the axle. Get a drill bit that fits just inside the wheel where the axle fits. This cleans out the roughness and burrs that cause wheels to not spin freely.

#### Step 4: Insert Axels

1. Check each axle for a burr on the underside of the head.
2. To let the wheels run as freely as possible, place an axle in a hand-drill chuck to hold it steady, then smooth the burrs with a fine emery cloth or file.
3. To fine-tune your axles, polish them with jeweler's rouge or fine emery paper. These items can be purchased at a local hardware store.

#### Step 5: Paint

After shaping and sanding your car to your satisfaction, prime it, sand it with fine sandpaper, and add additional coats of paint or a "skin". Do not glue details on yet.

#### Step 6: Install Wheels and Axles

Put the axles and wheels on the car, but don't glue axles on at this point. Weigh your car, being sure to place the car and the accessories (driver, steering wheel, roll bar, etc.) on the scale.

#### Step 7: Add Weights

1. The car may not weigh more than five ounces. Get your car as close to that weight as possible.
2. If you do not have a scale, the U.S. Postal Service or a supermarket might weigh your car for you. Your pack leaders may have identified official scales for you to use. Also, some Scout shops offer free weigh-ins (not considered an "official" weight, but a good guide while designing your car).
3. Weight must not be taped on. The car may be hollowed out and weight inserted to build it up to the maximum weight. Make sure it is securely attached or built into the body of the car so as to not fall off the car and onto the track.

#### Step 8: Test the Car

1. Once weight is securely mounted, slip wheels back on. Place car on a long, flat surface, such as a floor, and give it a gentle push. The car should travel in a straight line for a reasonable distance (five to ten feet).
2. Practice tracks are also available.

#### Step 9: Lubricate the Car (Check your pack's rules on lubing cars)

1. Lube and mount the wheels permanently. Dry, fine powdered lube works best. Dust a little powdered lube in the hole of the wheel where the axle is inserted, some on the axle where the wheel rides, and a little at the axle head.
2. Slide the axles and wheels onto the car and glue into place. Use an epoxy or nonresin glue, and make sure you don't get any on the surface of the axle where the wheel rides.

#### Step 10: Accessorize the Car

Make sure accessories are securely mounted on the car. Add stripes and decals if desired.

## Frequently Asked Questions

The big race is happening soon. You and your Cub Scout are ready to build the best Pinewood Derby® car ever. The answers to these most frequently asked questions will help get you going-FAST!

Where can we get our Pinewood Derby® kit?

Your local Scout shop has them. Scout leaders might arrange ways to provide them to members of your Cub Scout pack. And you can always order kits through [www.scoutstuff.org](http://www.scoutstuff.org).

Who builds the car?

A Pinewood Derby® gives a Cub Scout and an adult a project to complete as a team. They design the car together, build it, and then enter it in the race. Each boy can work with one or both parents, a guardian, grandparent, or other responsible adult.

What are the weight limits for a Pinewood Derby® car?

All cars in a Pinewood Derby® must be of a certain size and weight so they have an equal chance to win. Use the official Pinewood Derby® kit to ensure that you start with the correct size. For most derbies, the finished car can weigh no more than five ounces.

What are the other rules?

Each Cub Scout pack decides its own rules. For most derbies, your car must be built with the parts found in the official BSA Grand Prix Pinewood Derby® kit-the wooden block, official BSA® wheels, and axles. Paint, decorations, decals, and weights can be added as long as the final car stays under five ounces. For a look at sample rules, click here.

Can we substitute our own wheels, axles, or wood block for those from the Pinewood Derby® kit?

No. By starting with identical materials, every Cub Scout has a fair chance in the derby.

How can we make our car go fast?

Be sure the wheels are straight. Check the axles when you start building the car to be sure they fit correctly. (Your pack's experienced Pinewood Derby® adults can show you how.) Make any adjustments to the axles before your Cub Scout begins sanding and painting the car, then

remove the wheels. After painting the car, replace the wheels and you'll be ready to race.

Heavier cars are often faster than lighter ones. You can add metal (such as a fishing weight) to your car to bring it close to the five-ounce limit. Before painting your car, drill a hole in the wood a little larger than the size of the weight and glue the weight in place. Cover with wood putty and sand the area smooth. Securing coins to bottom of car is another way to add weight. See Pinewood Derby® products for special coin pockets. Experienced Pinewood Derby® adults can lead you through these options.

Is it okay to lubricate the axles?

Check your Cub Scout pack's rules. Dry lubricant such as graphite is often allowed, though oil and other fluids are not.

How can we practice before the race?

A practice track for testing the speed and balance of a car is available at [www.scoutstuff.org](http://www.scoutstuff.org); some Scout shops offer free weigh-ins.