

THE PINEWOOD DERBY RACE

INTRODUCTION

Every year more than a million Cub Scouts and parents team up to participate in a pinewood derby. The first pinewood derby was held in 1953 by Pack 280C of Manhattan Beach, California. The race was publicized in *Boy's Life* magazine in October 1954. The first derby was an instant and enduring hit. Since then nearly 35 million parents and Cub Scouts have built and raced pinewood derby cars. Join the ranks of millions of Cub Scouts who have stood in the derby winner's circle.

Pinewood Derby cars are simple small wooden cars of specified dimensions, created, carved, and assembled by the boys, under the guidance of a parent or another adult. The cars are powered only by gravity and race down a regulation track. Races are run in heats of several cars racing against cars built by boys of the same age/rank. Multiple heats may be necessary to determine the overall winners for a given age/rank. Each age/rank winner then competes against the other winners to determine a grand champion. Racing classes are also provided for siblings and for adult partners.

BUILDING THE CAR

This section provides guidelines and suggestions for constructing your race car. Be sure to read and become familiar with the official race rules. The car must be assembled using components from the official kit provided by the pack for each Cub Scout. Parents and siblings may purchase other official kits from local scouting supply distributors. The car must not exceed 2-3/4 inches in width, 7 inches in length, and 5 ounces in weight. It must have a minimum track clearance of 3/8 inch to clear the lane strip. The wheels must be 1-3/4 inches apart. In addition, the car's wheel base must be 4-3/8 inches, as provided in the official pinewood derby car kit. Competitors may modify the pre-cut grooves only for proper wheel alignment and to allow axle placement. Accessories, such as drivers, steering wheels and exhaust pipes, are permitted as long as they do not exceed the allowable dimensions and weight and they are securely fastened to the car.

The Pack will sponsor several workshops to assist those who are unfamiliar with pinewood car construction or do not have tools readily available. Parents and adults who are experienced car builders are encouraged to assist with these workshops. More fast cars make for a more exciting race. Some general suggestions for building your car are given below.

Step 1: Know the Rules

Read the race rules and car specifications in your kit. Each car will be weighed, measured, and inspected prior to registration. It is important to design your car with these rules in mind so as not to be disqualified prior to racing.

Step 2: Check Axle Alignment

It is strongly recommended that you check the axle groove alignment with a square and make any corrections prior to shaping the car's body. This provides straight and square surfaces to work with. Pre-drilling the grooves with a No. 43 or similar size (just under the size of the metal axles) often keeps the wood from splintering and allow easier insertion of the axles. Many people also choose to pre-drill their cars at this time for later installation of round plug weights. You may also wish to inspect the axles for burrs and molding marks that can interfere with free wheel rotation. These can be removed with a small file and the axles polished with emery paper or jeweler's rouge.

Step 3: Design the Car's Body

First choose your favorite design. Feel free to design anything you want. Aerodynamic designs rarely make a great difference in racing performance. Outline your design onto a paper or plastic template. Remember to maintain the 1-3/4 inch width where the metal axles will be inserted. Pattern and decal kits, which make car construction very simple, are available from local Scouting distributors. Be aware that the pre-cut kits available from several local hobby shops may not meet race specifications and, thus, may not be permitted to race.

Step 4: Shape the Car's Body

Transfer your design onto the wood block, and cut or carve the wood to shape. Power tools and sharp knives should only be used with close adult supervision. Always remember to wear proper safety equipment including safety glasses. Some people also choose to install metal weights at this time. Lots of sanding will be needed to get a smooth finish.

Step 5: Inspect the Wheels

Only the wheels provided in the official pinewood derby car kit are permitted. Bearings, washers and bushings are prohibited. Wheels can be sanded to remove surface imperfections, but the treads must be left flat. Make sure the wheels rotate freely on their axles. Powdered dry graphite is the only lubricant permitted. Oils and other liquid lubricants are prohibited as they may attack the plastic wheels or painted surfaces or may leave residue on the track.

Step 6: Paint and Decorate

Sanding sealer or similar primer will help provide a smooth base for your final paint color. Spray paints provide smooth finishes as long as they are applied in several light coats and allowed to dry properly. Light sanding with very fine sandpaper or steel wool in between coats will help provide a smooth finish. Details can be sprayed or brush painted. Decals can add color and a touch of realism to your racer.

Step 7: Install the Wheels and Axles

Now install the wheels and axles by pressing the axles into the pre-drilled grooves. Press or tap the axles lightly with a hammer using a wooden dowel or nail set. Don't glue them in place yet. Be sure to maintain the minimum track clearance of 3/8 inch.

Step 8: Check the Weight

You'll want to check the car's weight and fine-tune any metal weights and cast metal details installed at this time. If you don't have an accurate scale, the Post Office will usually be happy to weigh the car for you. Keep in mind that scales will vary and only the official race scale will be used for registration. Weights and accessories must be securely fastened and may not be taped on the car. When fastening weights to the car's underside, the 3/8 inch track clearance must be maintained.

Step 9: Final Preparations

After you've checked the weight and dimensions, make sure the axles, weights and any accessories are securely fastened to the car. Epoxy, polyurethane or similar glues can be used. Be careful that they don't affect the paint! You'll want to apply a dry powdered graphite lubricant where the wheels bear on the axles. Be careful not to use too much as it may foul the track. Test the car on a flat surface (table, floor, etc.). It should run free and straight for a reasonable distance (five to ten feet). One final check to make sure everything is secure and a last bit of graphite lubricant, and now you're ready to race. Make sure you take care of your fine-tuned racing machine prior to the race and *don't drop it!*

SPORTSMANSHIP & COACHING HINTS

Adults: Here are a few thoughts about sportsmanship that you may want to discuss with your Cub Scout. We've also provided some suggestions on adult coaching and guidance that may be helpful as you and your Cub Scout build his pinewood racer.

SPORTSMANSHIP

Pinewood derby racing requires participants to learn two main things: the craft skills necessary to make your car and the rules that must be followed. There is also a third part to competition that is very important — sportsmanship. This has to do with how you act and behave while racing your car.

The first thing to remember about sportsmanship is that everyone's skills are a little different. Some people are better than others at certain skills. You may be good at one thing and not so good at another. This doesn't mean that you're a good person some times and a bad person at other times. You can always be a good person, whether or not you have good skills for building and racing pinewood cars. Remember, you and your friends are Cub Scouts and individuals first and racers second. This idea is sometimes called *having respect for others*.

The second thing to remember is to follow the rules. Without rules, there would be no pinewood derby. You will never know if you are really good at something unless you follow the rules. This is sometimes called *being fair and being honest*.

The third thing to remember about good sportsmanship is that there are winners and losers in every competition. You know this when you choose to compete. There are times when you will win and will be happy, and times when you will lose and will be unhappy. Being a winner is easy, but being a loser is sometimes hard. To be a good sportsman, you must be able to say "I did my best" and be satisfied with the results. If you win, you must not gloat and tease the losers. Remember, unless you're graduating into Boy Scouts this year, you can always race again next year!

COACHING HINTS FOR ADULTS

- Review with your Cub Scout the rules and suggestions in this packet. Help him to understand all the rules and how the race will be run.
- Help your Cub Scout plan a schedule to prevent a last-minute project and allow time for him to do his best.
- As your Cub Scout chooses his favorite design, help him trace it on a template and on the block of wood.
- Guide him in the use of tools to shape the car and encourage him to sand the model thoroughly for a smooth finish. Use the "hand-on-hand" method, where you guide his hand by laying your hand on top of his when working with tools.
- Please use extreme caution when working around power tools and sharp hand tools with your Cub Scout. Always remember to wear appropriate safety equipment.
- Help your Cub Scout feel that it is his project and that he is doing most of the work with your help and guidance.
- Help your Cub Scout to understand that "doing your best" is more important than having the fastest car.
- Understand that the Pack leaders may need your help. If you have the interest and time, please contact the leaders and volunteer your time and skills.
- Feel a sense of pride when the car and the race are finished. Share it with your Cub Scout. You have both earned it!
- Spending time with your boy, helping him "do his best," will be remembered by both of you a long time after the race is finished and the ribbon or trophy is lost. Make the most of it.