

2010 Pack 284 Pinewood Derby

Weigh In: March 12 -- 7-9pm

Race Day: March 13 -- 10am

Location: Wayne Elementary Cafeteria

Please read the below rules and regulations carefully. In order to ensure an even playing field for all the scouts we will be checking every car for each of these rules on the night of weigh in. We do not want to have to disqualify any of the cars so please make sure you understand and follow each of these rules. If you have any questions please reach out to Keith Overton with any questions.

Weigh In (March 12th 7-9pm)

Between 7-9pm in the Wayne Elementary School cafeteria we will be registering cars for the Pinewood Derby. We will be checking the weight of each car as well as the rules outlined below. Only cars that pass all of these rules will be allowed to race. Once a car is accepted it will be quarantined overnight. You will not be allowed to modify your car once it has been weighed in.

During the weigh in we will be showing the movie "Down and Derby". Whether you want to stay and watch the movie with your son or just come in, register your car and leave - the choice is yours.

Note: Do not put any numbers on your car. Please bring the numbers that come with your kit with you to the weigh in. Your car will be assigned a number that will identify it for the race.

Race Day (March 13th 10am)

The race itself will start at 10am. Please be prompt so that you don't miss any of the races. It is always an exciting event so please bring extended family members to help cheer on the cars. Every car will get to run at least three races (one on each lane of the track). After the first round we will select the top cars who will move to the playoff round(s) and from there the top three will race in the finals. Barring any unforeseen delays the race should take between 1-2 hours.

Rules & Regulations – 2010

It is very important to follow these rules so that your car will qualify for both Pack 284's race and potentially the district races should your car be one of the top 3 finishers in the pack.

1. The car weight shall not exceed 5.0 ounces. Wood or metal may be added to reach the maximum weight, provided is securely built into the body or firmly affixed to it. No liquids or loose materials of any kind are permitted in or on the car. The official race scale shall be considered final.
2. The overall length of the car shall not exceed 7 inches.
3. The overall width (including axles and wheels) of the car shall not exceed 2 ¾ inches.
4. The car must have 1 ¾" clearance between the wheels.
5. The car must have 3/8" clearance underneath the body.
6. The wheel base must be unaltered (4 ¼").
7. The wood provided in the kit must be used. The block may be shaped any way that is desired. The starting gate requires that your car has a flat (even) front to engage properly (do not notch the front).
8. The wheels supplied with the kit must be used. The wheels may not be cut, drilled, beveled or rounded. You may remove the seam from the wheels.
9. The axles supplied with the kit must be used. They may be polished or lubricated (graphite only, no liquid lubrication).
10. Wheel bearings, washers or bushings are prohibited.
11. The car must not ride on any type of springs.
12. The car must be freewheeling, with no starting devices.
13. Details such as a steering wheel, driver, spoiler, decals, painting and interior details are permissible as long as these details do not exceed the above specifications. Cars with wet paint will not be accepted.
14. The car must have been built during the current year. Cars that have competed in a previous Derby are not permitted.

Note: If the car loses a wheel, or is otherwise damaged, the racer shall have 5 minutes to make a repair at which point it will need to pass inspection again.

Rewards & Recognition

We will be awarding awards for both speed and design.

Speed Awards

Pack

1st Place

2nd Place

3rd Place

Tigers

1st Place

2nd Place

3rd Place

Wolves

1st Place

2nd Place

3rd Place

Bears

1st Place

2nd Place

3rd Place

Webelos I

1st Place

2nd Place

3rd Place

Webelos II

1st Place

2nd Place

3rd Place

Note: A car may win only one speed award. So the pack winners are not eligible to win an award in their respective dens.

Design Awards

Best Craftsmanship

Best Scout Spirit

Funniest Car

Most Aerodynamic

Most Patriotic

Most Realistic Car

General Notes & Advice

The Pinewood Derby is a parent-son project. Please feel free to give guidance and assistance to your Scout as he builds his Pinewood Derby car. This is a chance for your son to be part of a team (he and you), and to enjoy the spirit of friendly competition with his peers and also for your Cub Scout to enjoy the satisfaction of building his own car from the kit provided.

It is not the intent that the parent shows the Scout where the tools are then walk away; nor is it the intent that the boy play video games while the adult cuts and sands. Parents should handle the use of any power tools and then direct the rest of the action while showing the boy each step in building a car.

Design

The first step is to think up a design. Remember, the more complicated the design the harder it will be to cut it out and shape it. Brainstorm on some pieces of paper and maybe even trace some ideas onto the block of wood before you make your final decision and start cutting. You can always get ideas from Pinewood Derby books and/or some research on the internet.

You are designing a race car but don't over think it too much and especially if it is your first car – keep it simple. There is some debate on how much aerodynamics really plays a role in a Pinewood Derby that is only 30 feet long... If it is your first time or you are short on time the tried and true wedge shape is a good safe choice. It only requires one cut (a diagonal from the front of the block to the back).

Construction

In general you will use a saw for the major cutting and shaping, sandpaper to finalize the shaping and to smooth the surface prior to painting, add weights, paint, and then only when everything else is done – add the wheels.

The quickest way to shape your car will be with a band saw. Whether you have one or can use someone else's this can save you time – depending on your design. A coping saw will also work and can be purchased relatively inexpensively at a hardware store. If you use a hand saw of some sort, securing the wood with a clamp or vice will make it a lot easier and safer.

Once the rough shaping is done with the saw it is time to use sandpaper. Use the sandpaper to eliminate saw marks, round rough edges, and finally to generate a smooth surface prior to painting. When using sandpaper start with coarser sandpaper (lower number) first and then work your way up to fine grade (higher number) in the end.

Weights

Since you removed wood when cutting, shaping, and sanding your block of wood is now lighter than when it started so you need to add weight. Your car will accelerate down the track by the pull of gravity – so the heavier the weight the faster it will go. Your goal should be to bring it as close to 5 ounces as possible.

There are many kinds of weights that you can use. Tubular weights can be sunk in the sides; flat weights, like those sold at hobby & council stores can be attached to the car bottom if it is carved in a bit. Incremental weights (with pre-marked grooves) are easier to snap off into the size you

need. Some folks just use BB's, nuts & bolts, etc... Weights must be screwed or glued in so that they cannot move.

Painting

It is not required but for the best possible paint job you will want to first prime the car with a primer. This will seal the wood and give you a cleaner paint job. After the primer dries sand it lightly and then paint it with one or two coats of finish paint.

You can use masking tape to mask certain areas if you want to paint the car multiple colors. You can also use colored tape, decals, etc... on top of your finish coat to add details. These items can be found at hobby stores or the scout shop. Remember not to add any numbers on your car as the car's number will be decided by the race committee.

Wheels

The last step is to mount the wheels. You want to first carefully polish the axles to remove any imperfections. There is usually a rough edge under the nail head of each axle that should be removed by a file or sandpaper. You want the axle to be as smooth as possible when you are finished. Your next step should be to check the wheels for any imperfections on the surface of the wheel. You should carefully sand these away.

When the axles and wheels are ready, carefully insert them into your car body. Do not make them too tight or the wheels will not spin freely. However, it is a balancing act because if they are too loose they will wobble and the car will not run smoothly down the track.

Tips

1. Have your son draw a design on paper then cut it out and use it as a template. You can use the paper with the little squares on it to make it easier or even buy a template.
2. Keep the car a full 7 inches long.
3. Use the full 2 $\frac{3}{4}$ inches (outside wheel to outside wheel) that the rules give you. This will allow the wheels to travel farther before hitting the center strip.
4. Use the groove closest to the end of the block of wood as the rear axle.
5. Leave a lot of wood in the back to distribute the weight towards the rear of the car (but not too far back to cause the car to pop a wheelie). Keep the weight low on the car and centered left to right.
6. Get the weight as close to the 5 ounce limit as possible. Remember, the official scale may not weigh the same as yours.
7. Do not make the front of the car pointed. It is hard to set up against the starting gate.
8. Axles must be inserted straight - front to back. That is square to the body.
9. Check to make sure that all wheels touch the ground evenly – you can check this on your kitchen counter or a flat table top.
10. After pressing in the axles, test the car for crooked wheels...roll it on the floor. If the wheels are on straight, the car should roll in a fairly straight line.
11. Lubricate your wheels with graphite prior to registering your car. You cannot use anything other than graphite (we will have it available to you at registration).
12. Don't play with your car once it is ready. Save that until after the race. Bumping into walls and running on rough surfaces will only slow down your car.

Please make sure that your son understands that his car is one of potentially 70 cars entered in the race, so the odds are against him. The goal is for everyone to have fun cheering on their car

and their friend's cars and of course the feeling of satisfaction that they will get from building their car with you and then seeing it race on race day!

Please contact me (or someone else from the race committee if you have any questions).

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