

# Pack 180's Pinewood Derby Tips

Here are a few tips to help in building your pinewood derby cars.

## 1. Weight

Maximum weight is 5.00 oz. The car **will** need weight added to get up to 5.00oz. This weight limit will be **strictly** enforced.

You can use a variety of things as weights, such as fishing lead weight or weights made for pinewood cars. Michael's crafts in W. Springfield has had some weights in the past, or you can find plenty of places on line that can supply you with weights.

The best place to add the weights is towards the back of the car and as low down as possible, placing the weights by drilling holes in the car and gluing the weight in place.

Be careful though not to place the weight too far back or the car may pop up on the back wheels and drag. Test the car's balance point by placing a pencil about 1 inch in front of the back axle slot and see if the car tips forward or backward. Ideally it should balance right about there.

Also be careful not to add your weights so they hang below the car, they may drag on the track and slow the car down (min 3/8" clearance).

Please make an effort to get your weight added **BEFORE CHECK IN!** Adding weight at check in really slows the event down, so we need to keep it to a minimum.

## 2. Design

Car design has little to do with performance. There is negligible effects from aerodynamics because the track is so short. Have fun with the design, be creative!

- no protrusions from the bottom of the car
- max width: 2 3/4" max length: 7 1/8"
- the front of the car **must not be so pointed** that it won't rest on the dowel that holds the car at the starting line.

## 3. Wheel and Axle prep

You **MUST** use the wheels and axles provided in your kit or official BSA replacement parts. Second to weight, reducing friction is an important step in building a fast car. The wheels and axles out of the box will impart a fair bit of friction.

You may want to lightly sand the wheel surface to remove the small bump on the tread, but you may not alter the shape of the wheel or significantly reduce the weight of the wheel. Rule of thumb, you may not remove the sidewall "tread" marks on the wheel.

You also will want to remove the bumps on the axle with a file and sandpaper.

## 4. Alignment

Once you have the car constructed and the wheels on the last step is to check the alignment. Run the car on a flat surface and see if it pulls one way or another. If the car pulls it will bump the rail which will slow it down.

You can adjust the alignment in one of two ways, either bend the axles to compensate for the pull, or shim the axle slot to properly align the axle. There literally are books on this topic, if you're really interested Google pinewood derby alignment and you can get detailed info on how to do this. Probably the most difficult part of the process.

Bottom line is to have some fun with your son on this project. It's also a great opportunity to teach a kid how to safely use tools. Of course the younger kids will need more help, but we really want the kids to be involved as much as possible in constructing the cars. So don't just build it for them, and don't buy a car on Ebay.