

Pinewood Derby Advice for First Timers from a First Timer
by
Matthew Artero, Akela, Tiger Den, Troop 15, Chamorro District, Aloha Council
14 March 2016

The Pinewood Derby is a great parent/Akela and child/Scout activity that allows shared experiences and types of bonding not available in other children's activities, where parents are not able to be as involved with their child.

In Pinewood Derby, parents don't just cheer their children on from the sidelines, they are partners with their child on the same team. Pinewood parents are not just building cars, they are building their children. The guidelines here should be helpful to an Akela/parent, do well in their part of their team.

Here is practical advice for first time participating parents to ensure that the Pinewood Derby experience is as much fun as possible, and thereby maximizes all the potential benefits for the participating Scout and his parents/Akela. This is not how to build the car advice. This is advice on maximizing the fun and benefits of the experience.

Sure Pinewood Derby seems simple enough and straight forward enough. But for a first timer learning all the intricacies for the first time; it's easy to become distracted away from the practicalities involved, with a child who might be as young as six years old, building a car that performs well.

It certainly cannot be unusual that a first time participating adult finds him or herself lacking some information, understanding, or know-how, that in hindsight could have been very helpful if acquired earlier.

Perhaps the gentle and encouraging guidance that Cub Scouts receive, to do their best, whatever their personal best may be, can spill over to how adults in troops, packs, and dens treat each other. Or perhaps an organization in need of more volunteers doesn't want to come across as demanding and thereby scare off a potential volunteer.

Or maybe the busy schedule that everyone has causes gaps in the guidance that new adult members need. Certainly it can be difficult for older members to guess at and or discern just how much and what guidance a new member needs. Some of us don't make it to every meeting and that can be the reason some useful information is missed.

This article can be seen as a check list of reminders, that even old hands may find useful in our busy lives.

Here are the top four things to consider, which maybe nobody around you is talking about:

1. Simply mounting the wheels on the axles and gluing the axles on the block of wood can produce a car that performs respectably. Therefore your Scout can

have a great experience just simply gluing the axles on, and decorating his block of wood.

2. Any attempt to make your car faster, by altering any of the components of the kit (or raw materials), increases the amount of time and effort required to ensure your car performs better than if none of the pieces of the kit (or raw materials) were altered. Everything that is done to alter the materials requires checking, testing, altering, and retesting, multiple times.
3. The time and work required to ensure your car performs better than a block of wood on wheels, goes up exponentially the more complex your design is. In other words, with each level of complexity attempted, you are taking the risk of ending up with a poorer performing car than if the attempt wasn't made at all, or if a less complex attempt was made.
4. The risk is reduced by ensuring your Scout only attempts what he has time to complete, including time for repeated testing and alterations.

Here is practical advice prioritized in the order to be considered.

1. Remember the physical, mental, and emotional limits of the child. Spread out the work so it is not unnecessarily taxing. In other words start early and use many short work sessions.
 - a. A child can only stay focused for so long.
 - b. A child can only do so much sawing, sanding, or other physical activity before hands become sore, tired, and the activity becomes no longer fun or interesting.
 - c. A child's forward thinking is much more limited. They don't experience the same level of joy from working to achieve a goal that an adult is capable of experiencing. That's why we teach them stories such as the Little Red Hen, The Three Little Pigs, and The Little Engine That Could. But teaching these things doesn't change their limits set by their current physical development.
2. There are a lot of tips and tricks easily available on the internet, or even from friendly Scouts and parents of your District. Don't be concerned about following them all. For the ones you do choose to follow; only follow them according to the abilities or your Scout/child.
 - a. You will hear about the sweet spot of where to position weights on the car. The more weight in the sweet spot the faster it can propel your car.
 - i. This requires cutting as much weight as possible off of other areas of the car, so that it can be transferred to the sweet spot.
 - ii. The more that is cut off, the more complex the design becomes. The more complex the design, the more work is required to have a symmetrical car in which the aerodynamics and balance of the weight will not negate the positive effects of having transferred weight to the sweet spot.
 - iii. As much as it hurts a young Scout's hands. Sawing off all the excess wood is the easiest and shortest part of making an intricate design. Is your Scout ready to do all the intricate filing, sanding,

shaping, testing, and measuring to ensure his car has good balance and symmetrical aerodynamics?

- iv. This is why a car that is a simple wedge can be a first place winner. It has less weight in the sweet spot, but its balance and aerodynamics are more easily made precise. The more complex your design is, the more time and effort it takes to ensure the completed work is more help than it is a hindrance.
- b. You will hear that you should bend your axles to have less friction and to guide the car into rail riding so that it has a less friction creating bumpy ride. But your reality might dictate that you are better off not attempting this.
 - i. This is actually a delicate and time consuming task that requires multiple tests and adjustments to ensure it is done in a manner where the car will still be within the measurement requirements.
 - ii. For the sake of precision and ensuring you are not creating more friction instead of less friction, you do not want to do this without the special axle bending tool that you will likely have to mail order. If you do this free hand and eyeball it, you can end up with four axles doing four (4) different things that cannot be adjusted to work together properly.
3. Recommended order of steps in the building process:
 - a. Consider all the categories that prizes are awarded for. Your Scout may decide to not try to build the fastest car and instead pursue another prize that is offered.
 - b. Start with a less complex design that your Scout can be excited about. Even if it is nothing more than a simple wedge. This can be changed later if you find you have enough time, and your Scout has enough skill and desire to attempt a more complex design.
 - i. The aerodynamics of the car is only worth about an 11% speed increase.
 - ii. So a simple design that is precise can perform much better than a less precise more complex design, that is more difficult and time consuming to execute with the required precision.
 - c. If you will not attempt changing the design to a more complex one, go ahead and decorate the car at this time.
 - d. Before attempting a more complex design, work on getting the wheels and axles right. But refrain from gluing them into their final position until all decorating is done.
 - i. This will require repeated testing and adjustments.
 - ii. Note the time and effort it took to precisely adjust the axles.
 1. This will have to be repeated if the design is changed.
 2. Verify that your Scout has enough time to repeat this effort after also allowing time for changing the design. If there is not enough time for both design change and axle testing, than that is reason enough not to attempt a more complex design even if the Scout has the ability to do so.

3. If decorating hasn't been done yet, the axles will likely have to be removed while decorating is done. Then the testing process of setting the axles correctly will have to be repeated after decorating is complete.
4. Glue the axles into their final position only after the design and decorating are finalized.

Keeping these considerations in mind and following this order of procedures will prevent some stressful situations from ever occurring. It will also make it quick to reduce and or eliminate any stress and or frustrations that might occur. This ensures the maximum amount of joy is experienced by both parent/Akela and child/Scout.