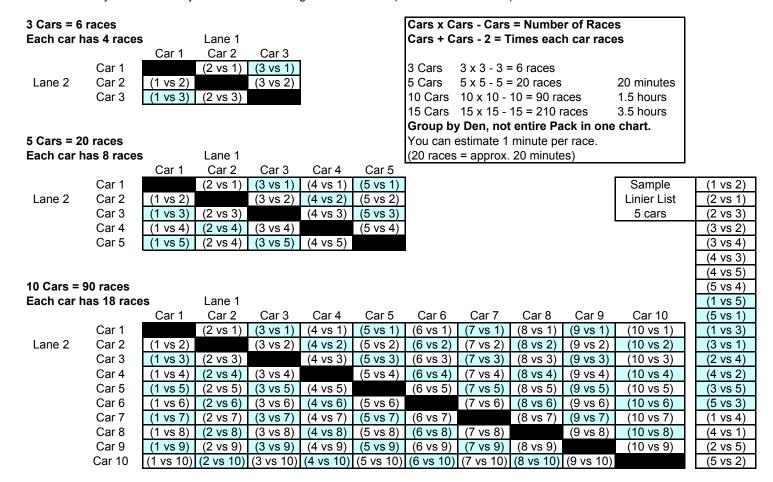With this chart system, every car gets the same number of races no matter how fast or slow.
Every car races every other car twice using alternate lanes. (For Two Lane Tracks)

3 Cars = 6 races
Each car has 4 races

		Lane 1		
		Car 1	Car 2	Car 3
	Car 1	■	(2 vs 1)	(3 vs 1)
Lane 2	Car 2	(1 vs 2)	■	(3 vs 2)
	Car 3	(1 vs 3)	(2 vs 3)	■

Cars x Cars - Cars = Number of Races
Cars x Cars - Cars = Number of Races
Cars + Cars - 2 = Times each car races
3 Cars   3 x 3 - 3 = 6 races
5 Cars   5 x 5 - 5 = 20 races   20 minutes
10 Cars   10 x 10 - 10 = 90 races   1.5 hours
15 Cars   15 x 15 - 15 = 210 races   3.5 hours
Group by Den, not entire Pack in one chart.
You can estimate 1 minute per race.
(20 races = approx. 20 minutes)

5 Cars = 20 races
Each car has 8 races

		Lane 1				
		Car 1	Car 2	Car 3	Car 4	Car 5
	Car 1	■	(2 vs 1)	(3 vs 1)	(4 vs 1)	(5 vs 1)
Lane 2	Car 2	(1 vs 2)	■	(3 vs 2)	(4 vs 2)	(5 vs 2)
	Car 3	(1 vs 3)	(2 vs 3)	■	(4 vs 3)	(5 vs 3)
	Car 4	(1 vs 4)	(2 vs 4)	(3 vs 4)	■	(5 vs 4)
	Car 5	(1 vs 5)	(2 vs 4)	(3 vs 5)	(4 vs 5)	■

Sample	(1 vs 2)
Linier List	(2 vs 1)
5 cars	(2 vs 3)
	(3 vs 2)
	(3 vs 4)
	(4 vs 3)
	(4 vs 5)
	(5 vs 4)
	(1 vs 5)
	(5 vs 1)
	(1 vs 3)
	(3 vs 1)
	(2 vs 4)
	(4 vs 2)
	(3 vs 5)
	(5 vs 3)
	(1 vs 4)
	(4 vs 1)
	(2 vs 5)
	(5 vs 2)

10 Cars = 90 races
Each car has 18 races

		Lane 1									
		Car 1	Car 2	Car 3	Car 4	Car 5	Car 6	Car 7	Car 8	Car 9	Car 10
	Car 1	■	(2 vs 1)	(3 vs 1)	(4 vs 1)	(5 vs 1)	(6 vs 1)	(7 vs 1)	(8 vs 1)	(9 vs 1)	(10 vs 1)
Lane 2	Car 2	(1 vs 2)	■	(3 vs 2)	(4 vs 2)	(5 vs 2)	(6 vs 2)	(7 vs 2)	(8 vs 2)	(9 vs 2)	(10 vs 2)
	Car 3	(1 vs 3)	(2 vs 3)	■	(4 vs 3)	(5 vs 3)	(6 vs 3)	(7 vs 3)	(8 vs 3)	(9 vs 3)	(10 vs 3)
	Car 4	(1 vs 4)	(2 vs 4)	(3 vs 4)	■	(5 vs 4)	(6 vs 4)	(7 vs 4)	(8 vs 4)	(9 vs 4)	(10 vs 4)
	Car 5	(1 vs 5)	(2 vs 5)	(3 vs 5)	(4 vs 5)	■	(6 vs 5)	(7 vs 5)	(8 vs 5)	(9 vs 5)	(10 vs 5)
	Car 6	(1 vs 6)	(2 vs 6)	(3 vs 6)	(4 vs 6)	(5 vs 6)	■	(7 vs 6)	(8 vs 6)	(9 vs 6)	(10 vs 6)
	Car 7	(1 vs 7)	(2 vs 7)	(3 vs 7)	(4 vs 7)	(5 vs 7)	(6 vs 7)	■	(8 vs 7)	(9 vs 7)	(10 vs 7)
	Car 8	(1 vs 8)	(2 vs 8)	(3 vs 8)	(4 vs 8)	(5 vs 8)	(6 vs 8)	(7 vs 8)	■	(9 vs 8)	(10 vs 8)
	Car 9	(1 vs 9)	(2 vs 9)	(3 vs 9)	(4 vs 9)	(5 vs 9)	(6 vs 9)	(7 vs 9)	(8 vs 9)	■	(10 vs 9)
	Car 10	(1 vs 10)	(2 vs 10)	(3 vs 10)	(4 vs 10)	(5 vs 10)	(6 vs 10)	(7 vs 10)	(8 vs 10)	(9 vs 10)	■

This score chart can be drawn up quickly on a chalk board or poster board at the beginning of the competition
Or, a blank can be pre-printed in advance. (A large chart posted makes it fun for the audience to keep track of progress.)

1 Draw the chart lines for the anticipated number of participants.

2 Cross out the center squares starting with the first box working down diagonally.

3 Write the boys names (and/or car #) along the top and left edge of the chart. (Leave all other squares blank.)
   (If a boy comes late after the races have started, simply add his name and include him in the races.)

4 The cars listed on the top of the chart are always in lane 1. (See sample above)

5 After each race, write the winners name or car number in the corresponding square.
   If you printed the chart above, just circle the winner in the square for each race.

6 It is best to start with the first square below the blocked out row. Then the first square above. Continue
   alternating down diagonally. (1 vs 2, 2 vs 1, 2 vs 3, 3 vs 2, 3 vs 4, …) Or use a linier list (See sample above)

7 When all the races are completed, total the number of wins for each car. The highest number wins 1st place.
   If there is a tie, you can have a race off between the tied cars, or use the fastest time if you've recorded them.

Notes: As the number of cars increase, the number of races increase exponentially. 5 to 7 cars per bracket is optimal.

The winner from each den or age group can progress to the next level. (District and Council races)

With these in mind, it may be better to group your races by Den rather than the entire Pack in one bracket.

You can have a race off with the winners of each Den for an overall Pack champion, using a new chart.

(If you have a small Pack and race all on one chart, remember to award a first place for each age group.)

If you use a large chart (10 x 10 for example), you can use just the top half to cut down the number of races.
However, you lose the alternating lane feature.

For tips on making a faster Pinewood Derby car, go to   www.pulleninc.com/pinewood/