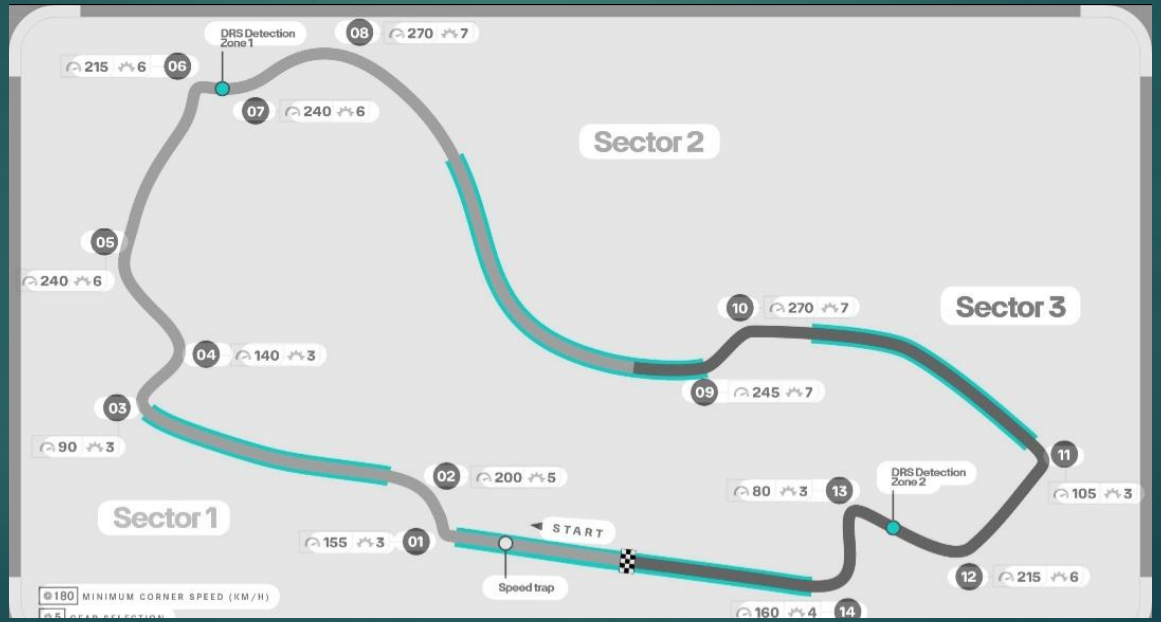
Formula for Safety

Question

Can Formula 1 tracks be made safer to reduce the number of crashes?



Research

1. https://en.wikipedia.org/wiki/List_of_Formula_One_circuits List of Formula One circuits – Wikipedia
2. Formula 1 Circuit Maps | F1 Tracks Layout Formula 1 Circuit Maps | F1 Tracks
3. F1 - The Official Home of Formula 1® Racing Formula 1 Teams and Cars

Hypothesis

I think that by increasing the padding on the turns it will be safer and reduce the amount of crashes. I think that the water will help absorb some of the impact. I feel that the tires might reduce the crash impact but possibly still cause damage to the car.

Materials

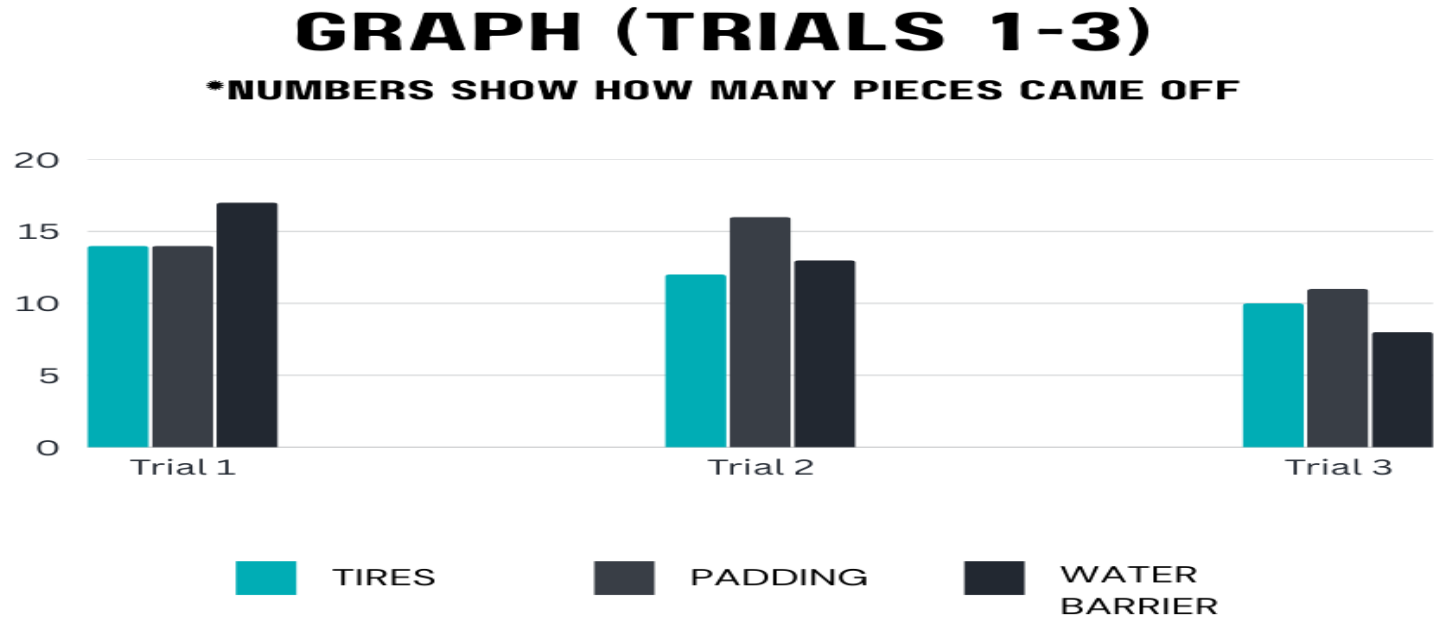
- Plastic baggie filled with water {1}
- Black cotton padding
- Formula 1 Lego car
- Lego Tires without the rims {6}
- Small cardboard box
- Timer
- Phone for pictures
- Paper and pencil

Procedure

1. Prepare the box and the Lego Formula 1 car.
2. Next, conduct a test run by adding the black padding to the corner of the box and push the car into the box and let it go at an angle so it will hit the padding at a high speed.
3. Repeat the same test the same way but this time using 6 black Lego tires without the rims.

4. Finally, I will use a plastic baggie that I fill ¼ of the way full, roll it tight to fit in the corner of the box and conduct the same test as steps two and four.

Graph


GRAPH (TRIALS 1-3)
*NUMBERS SHOW HOW MANY PIECES CAME OFF
20
15
10
5
0
Trial 1
Trial 2
Trial 3
TIRES
PADDING
WATER BARRIER

Conclusion

When I conducted my experiment, I thought that the black padding would provide the best protection against a crash but it actually caused the car to bounce back the most and still had damage. The Lego tires caused the most damage because they provided no protection to the car and resulted in the most pieces breaking from the car. The water barrier still caused the car some damage but gave the most protection upon impact. I feel that if Formula 1 could create a water bag or water barrier, this would reduce the overall damage and crash rate to the cars.