

## Core Skills Analysis

### Engineering

- The student learned about gravity and its impact on the speed of the Hotwheels cars on different parts of the track.
- Understanding of basic principles of kinetic and potential energy as they manipulated the track design to create loops and jumps.
- Exploration of friction and its effect on the movement of the cars along the tracks.
- Concepts of aerodynamics came into play as they designed track elements that affected the air resistance on the cars.

### Tips

For further development after the Hotwheels track design activity, encourage the student to experiment with different track materials to observe how they affect car speed and performance. They can also explore incorporating elements like pulleys and levers to create interactive elements on the track. Encouraging them to document their designs and modifications can help them track their progress and learn from each iteration. Additionally, challenging them to incorporate loops of varying sizes can introduce them to the concept of centripetal force in a fun and engaging way.

### Book Recommendations

- [Hot Wheels: From 0 to 50 at 1:64 Scale](#) by Kris Palmer: Explore the history and evolution of Hot Wheels cars while diving into the engineering behind these iconic toys.
- [The Ultimate Guide to Collectible Hot Wheels Cars: Identification and Price Guide](#) by Michael Zarnock: A comprehensive guide to Hot Wheels cars, detailing the design and mechanics of different models for collectors and enthusiasts.
- [Miniature Hot Wheels Tracks: The Ultimate Guide for Beginners](#) by Brent Adams: Ideal for beginners, this book provides step-by-step instructions and creative ideas for designing Hot Wheels tracks for maximum fun and excitement.