Objective

By the end of this lesson, you will learn about the science behind car races and understand concepts such as speed, friction, and aerodynamics.

Materials and Prep

- Toy cars or model cars
- A smooth surface for racing (e.g., a tabletop or a wooden floor)
- Measuring tape or ruler
- Stopwatch or timer

No prior knowledge or preparation is required for this lesson.

Activities

- Activity 1: Race and Measure

  Set up a race track using the smooth surface. Use two different cars and measure the distance they travel. Observe which car reaches the finish line first and discuss why one car may be faster than the other.

- Activity 2: Friction Experiment

  Place different materials (e.g., sandpaper, aluminum foil, wax paper) on the track and test how it affects the speed of the cars. Discuss how friction plays a role in slowing down or speeding up the cars.

- Activity 3: Aerodynamics Exploration

  Create different shapes using clay or cardboard and attach them to the cars. Test how these modifications affect the speed and stability of the cars. Discuss the concept of aerodynamics and how it helps in car racing.

Talking Points

- Speed:

  "Speed is how fast something moves. In car racing, the faster the car, the more likely it is to win the race."

- Friction:

  "Friction is a force that slows things down. When the cars move on different surfaces, like sandpaper or wax paper, it creates more or less friction, which affects how fast they can go."

- Aerodynamics:

  "Aerodynamics is how the shape of an object affects how it moves through the air. Cars with smoother and more streamlined shapes can go faster because they face less air resistance."