

Data 2—RFTL Race Day



Key knowledge

The cars have 2 loops on their underside to attach them to the tether line.

The CO₂ cannister provides a thrust force so that the car can accelerate.

The car starts at 0m/s.

The car accelerates up to its greatest velocity and then decelerates.

The speed is measured at a fixed point and is not constant.

A fair test is when all the variables are kept the same apart for the one that we change. We are changing the car—this is the independent variable.

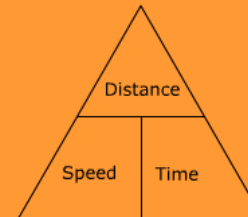
We will be measuring the speed—this is the dependent variable.

We will keep the CO₂ cannister the same—this is one of the control variables.

Key Skills

$$\text{Average Speed} = \text{Total Distance} \div \text{Total Time}$$

To use an equation triangle, cover the quantity you are calculating and use the remaining to calculate.



E.g. $\text{Distance} = \text{Speed} \times \text{Time}$

The fastest time is the smallest time taken when the distance is fixed.

Record the time using the correct units (s or ms)

When testing, stand behind the safety line and follow all instructions.

Ensure that both loops on the car are attached and the ends of the race line are tethered.

Key vocabulary

Evaluate—to assess or determine the quality of a product against its specification.

Drag—a force acting opposite the motion of any object moving through a fluid (liquid or gas).

Force—an interaction which can change the speed, direction or shape of an object.

Safety—being protected from danger, risk or injury

Hazard—something that could cause harm e.g. the fast moving dragster, tripping over the tether line

Risk—the chance of a hazard occurring—low, medium or high risk

Velocity—speed in one direction

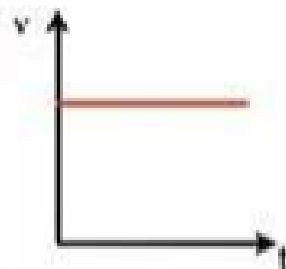
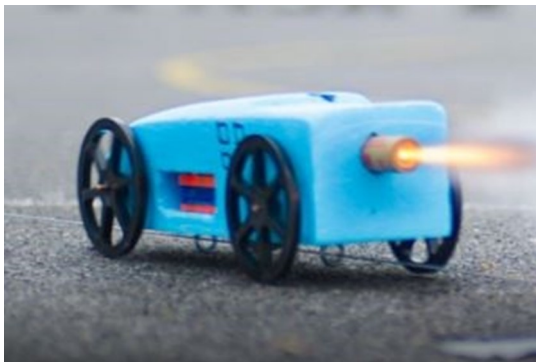
Acceleration—change in velocity—usually speeding up

Deceleration—slowing down or negative acceleration

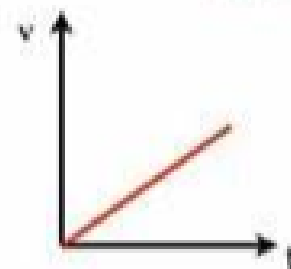
Independent Variable—the variable that we change in an investigation or test

Dependent Variable—the variable that we measure in an investigation—it “depends” on the variable that is changed

Control Variable—the variables that we control or keep the same in an investigation



Constant Velocity



Constant Acceleration