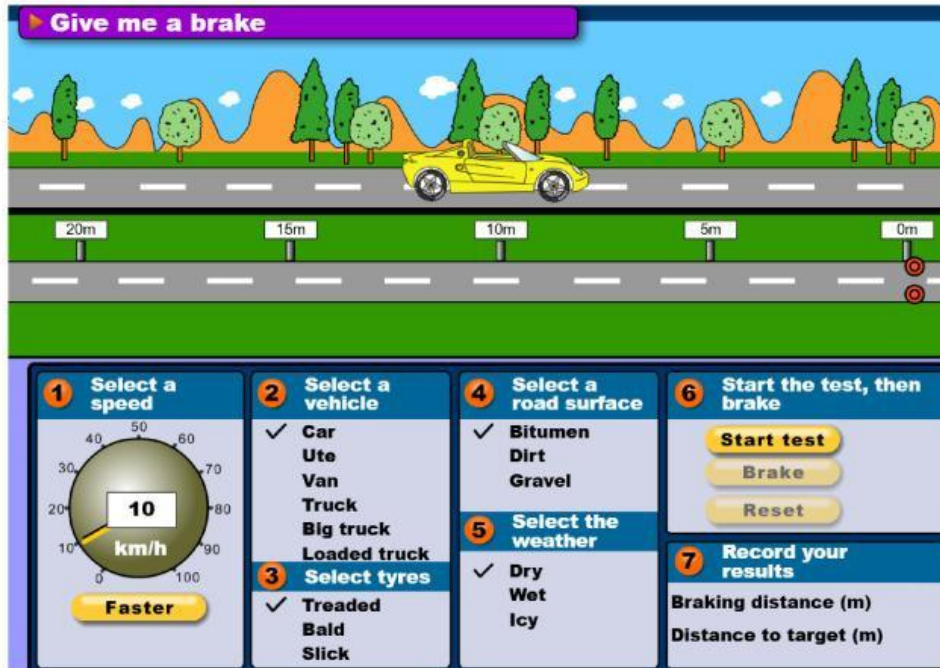


Identifying Variables in a Science Investigation



A Fair Test

When designing an investigation, you can only change one variable. The variable that is changed is the variable that you want to investigate.

IE If I want to investigate which type of fertilizer provides optimum plant growth, I would not change the type of fertilizer and the amount of water used at the same time. If I do this, I do not know whether the fertilizer or the amount of water is affecting the plant growth.

When conducting the experiment, I will use the same soil, give plants equal amounts of water and sunlight and try to keep the growing conditions the same. The only change I will make in each trial is the type of fertilizer.

Independent Variable: type of fertilizer

Dependent Variable: amount of growth

Controlled Variable: soil type, amount of light, amount of water, type of plant, growing environment

Q1. Simone wants to investigate if mass (vehicle type) affects the stopping distances.

What are the Controlled Variables?

Speed	Vehicle Type	Tyre Type	Speed
Road Surface	Type of Weather	Stopping Distance	

What is the independent variable?

What is the dependent variable?

Q2. Simone wants to investigate if the type of weather affects the stopping distance of a vehicle.

What are the Controlled Variables?

Speed	Vehicle Type	Tyre Type	Speed
Road Surface	Type of Weather		Stopping Distance

What is the independent variable?

What is the dependent variable?

Q3. Simone wants to investigate if the type of tyre affects the stopping distances of a vehicle.

What are the Controlled Variables?

Speed	Vehicle Type	Tyre Type	Speed
Road Surface	Type of Weather		Stopping Distance

What is the independent variable?

What is the dependent variable?

Q4. Q1. Simone wants to investigate if road surface affects the stopping distances of a vehicle.

What are the Controlled Variables?

Speed	Vehicle Type	Tyre Type	Speed
Road Surface	Type of Weather		Stopping Distance

What is the independent variable?

What is the dependent variable?

Can Simone change the type of vehicle used in different trails?

Explain

What will Simone be testing.?

Wet roads	Gravel Roads	Dry roads	Trucks
Cars	Bitumen Roads	Bald Tyres	Dirt Roads

Aim

To investigate if the _____ affects the _____ of a car.

Hypothesis

Travelling at a _____ speed, a car should stop _____ on a bitumen road. A bitumen road will have _____ contact with the surface of the tyre. This means the _____ of friction will be _____. The stronger the _____ the _____ the car will slow down.

Analysis

The _____ show that the type of _____ has a clear effect on the _____ of a car, under _____ conditions. On _____, the car stopped in _____, which is the _____ distance. On _____, the _____ increased to _____, and on _____ it was even longer at _____.

This pattern suggests that _____ is the _____ affecting _____. Bitumen has a smoother and more stable surface, which allows to _____ the road better. This higher _____ helps the car _____ more quickly. _____ are rougher and looser surfaces, which _____ the grip between the _____ and the road. With less grip, the car takes _____ to slow down and stop.

The results show a clear _____ : as the surface becomes _____ stable and _____ slippery (from bitumen to dirt to gravel), the _____ increases.