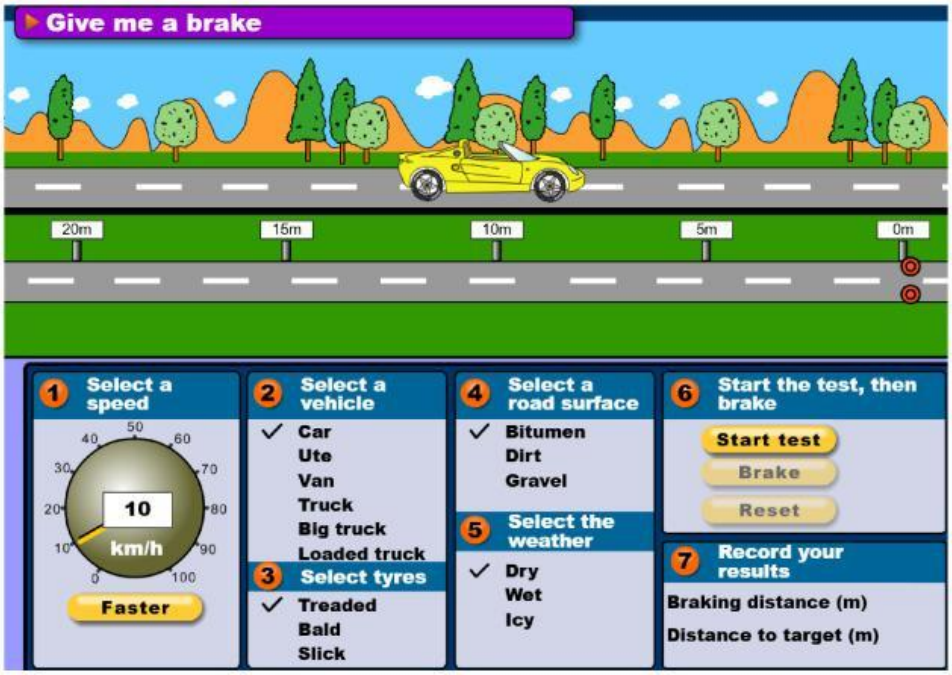
Identifying Variables in a Science Investigation



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?

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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.

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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.

LIVEWORKSHEETS