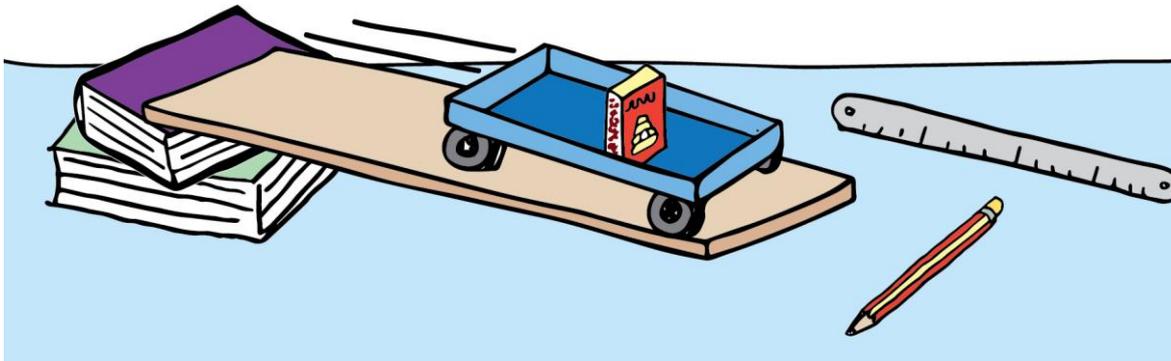


EFFECTS OF IMPACTS

Science in motion | Design for safety | Activity C1



INVESTIGATION 1

Make a ramp with the top end about 20cm high.

Place your pen, pencil or short block of wood about 5 cm after the end of the ramp blocking the path.

Sit your object on top of the vehicle and release it from the top of the ramp.

What do you observe?

Think and discuss

Were you surprised by what happened?

If we are interested in the effects of an impact or crash, what should we measure in this investigation?

Would the same thing happen every time?

Test this scenario 5 times so you are sure of your results.

Things you'll need

Ramp wide enough for a toy car

Books or blocks to hold up the ramp

Toy car or truck

Object the size of a match box (wooden block, Lego block)

Hairband or piece of string

Pen, pencil or short block of wood

Ruler

INVESTIGATION 2

This time use a hairband or piece of string to secure the block to the top of the vehicle.

Repeat in the same way as the first investigation.

- What do you observe?
- Make any measurements and record them.

Think and discuss

What happens to the object on top of a moving vehicle when it stops suddenly?

Did you control all the variables each time?

What is the effect of restraining the object?

What further questions do you have about what happens to things in or on a vehicle in a crash?

Can you design an investigation to answer your questions?

What patterns have you seen in your investigations?

Can you make an evidence-based claim about the benefits of wearing seatbelts?

Suggestion

Take a video and replay it in slow motion to see more detail of what happens in your crash.

Teacher support material

For further activities and curriculum support:

[Science in motion \(Waka Kotahi Education Portal\)](#)