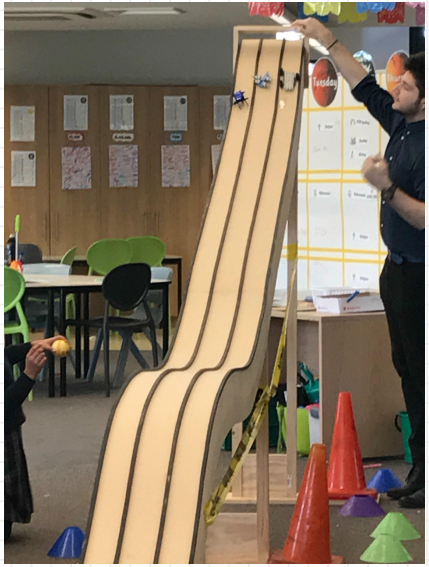


Nerdy Derby

(The science behind the derby)

Learning Intentions

Questioning and predicting

WALT investigate scientifically and predict what might happen based on prior knowledge

Planning and conducting

WALT suggest ways to plan and conduct investigations to find answers to questions

WALT conduct fair tests

WALT safely use appropriate materials, tools, equipment and technologies

Analysing and evaluating

WALT compare results with predictions, suggesting possible reasons for findings

Communicating

WALT represent and communicate observations, ideas and findings to show patterns and relationships using formal and informal scientific language

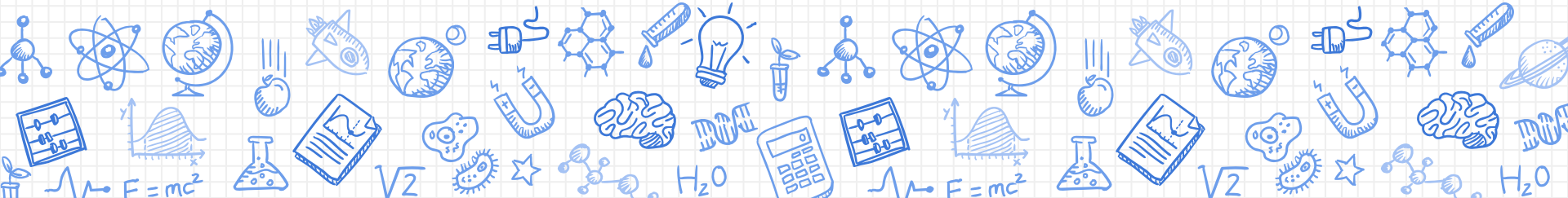
Force and Friction

What is force?

Force

Challenge:
Use the ramp and cars.
How might we design an experiment that shows the presence of force and it’s affect on the speed of the car?

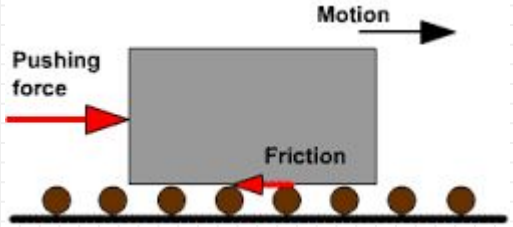
Force and Friction
What is friction?



Force: strength or energy as an attribute of physical action or movement.

A force is
a **push** or a **pull**

Friction: the resistance that one surface or object encounters when moving over another



Investigate:

How does friction affect the movement of a car?

- ✘ Work in a small group
- ✘ You have 20 minutes
- ✘ Use the ramp, carpet, corriflute, material and car to design an experiment to show friction.
- ✘ Present your findings to the class

What did you find out?

Which material created the strongest amount of friction?

What result did this have on the car's movement?

What impact does this scientific knowledge have on your next design prototype for the Nerdy Derby?

- Think/ pair/ share

Research

Does the size of the wheel affect the amount of friction?

Why?

Does the material used affect the amount of friction?

How?

Make a list of the elements of design that you think a scientist should consider when designing a Nerdy Derby car.

What are you going to do with this knowledge?