

What's the Connection? Forces and Motion



What's the Connection?

time

distance

Speed – is distance
(metres) / time (seconds)
and is measured in metres
per second

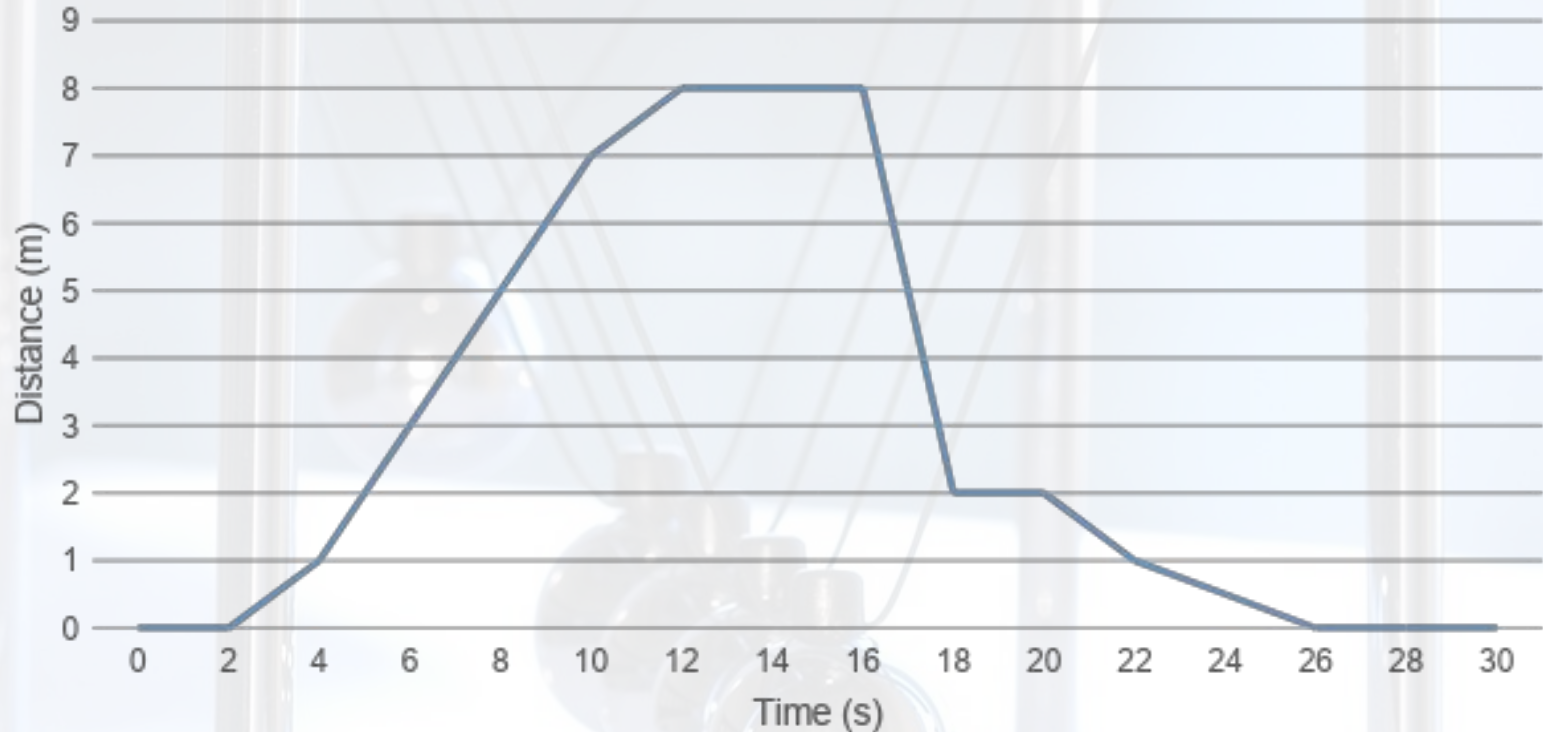
metres

metres per
second

seconds

What's This?

What do distance-time graphs show?



A graphical representation of a journey showing how long it took and how far it was. The speed can also be calculated using the gradient of the lines.

What's the Connection?

kg

mass

Momentum – is calculated by mass (kg) x velocity (m/s) and has the units kg m/s

m/s

velocity

Kg m/s

What's the Connection?

crash

buckle

Crumple zone – the area in a vehicle which, in the event of a crash, is designed to buckle at the front and or the back to reduce the impact of the force on the passengers

vehicle

back

front

What's the Connection?

tiredness

alcohol

Factors that affect reaction times – all of these can distract a driver and reduce their reaction time therefore not stopping the car as quickly as might be necessary

drugs

talking

phone

Why?

If I am travelling in a car and apply the brakes, why does the car still travel after I have seen the danger?

Stopping distance is the distance a vehicle travels in order to stop. It is calculated by adding the thinking distance to the braking distance.

What are these?

The thinking distance is the distance travelled by the vehicle once the hazard has been spotted and the driver reacts. The braking distance is the distance travelled by the vehicle once the driver has applied the brakes.

What's Being Described?

An object travelling at a constant speed, or remaining stationary has all the forces balanced and the resultant force is zero.

Newton's first law – balanced forces

I am a skydiver and have reached a point where my weight is balanced by resistive forces – how fast am I travelling?

Terminal velocity

What are the Words?

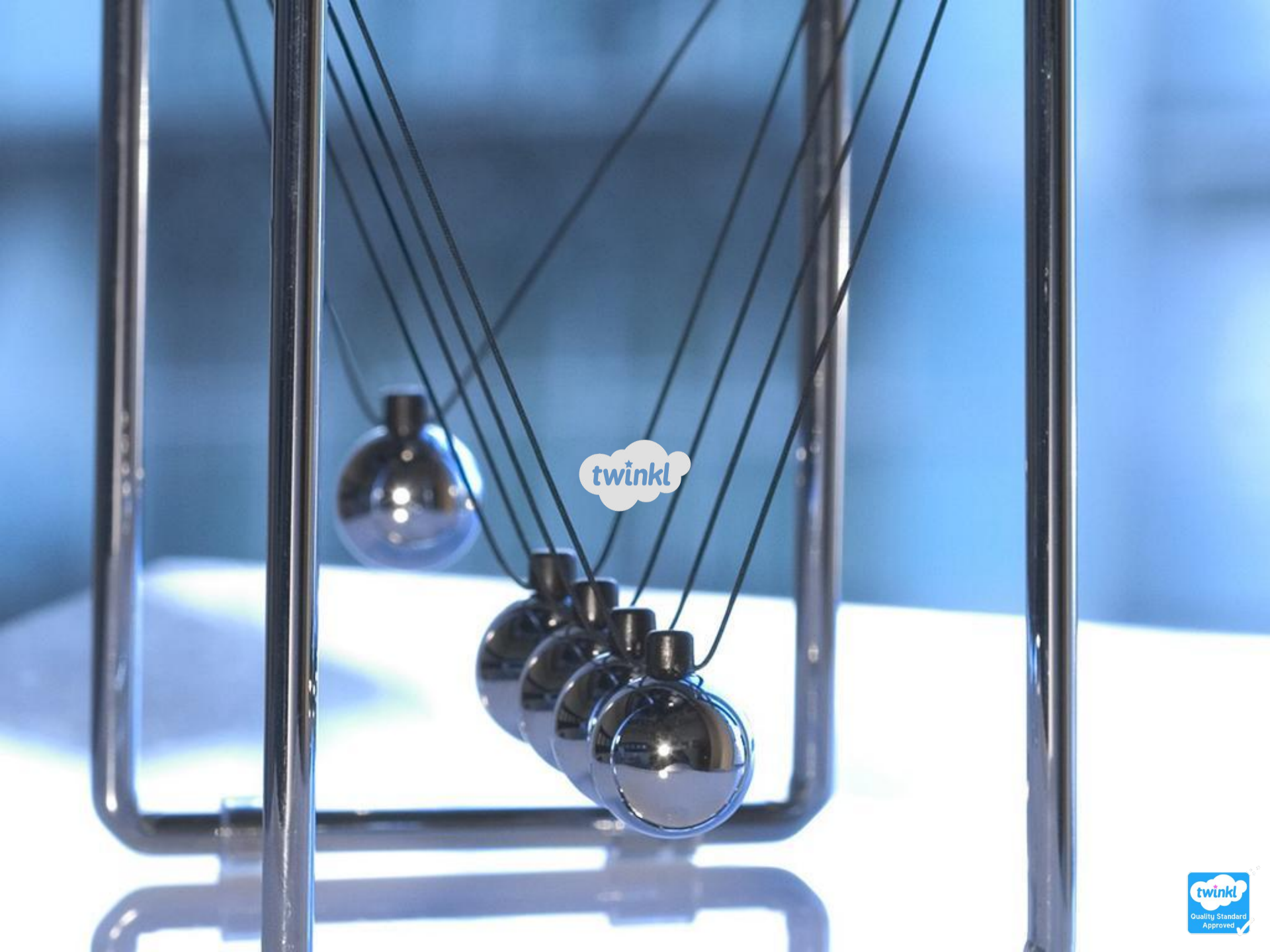
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