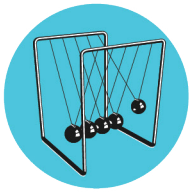


Collisions: Newton's Laws of Motion
Comprehension Questions

View the clip attentively. After you finish watching, complete the following comprehension questions and tasks.

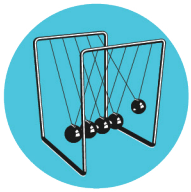
1. State Newton's first law of motion.

2. Use Newton's first law of motion to explain the motion of:

a) a rocket moving through outer space at a constant speed.

b) a parachutist falling from an airplane.

c) a stationary book on a table.

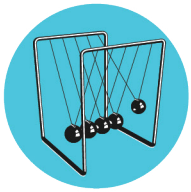


Collisions: Newton's Laws of Motion
Comprehension Questions

3. Describe how safety features in cars, such as seatbelts, can be explained in terms of Newton's first law of motion.

4. Newton's second law can be summarised by the equation F = ma. Use this equation to show that bringing a car to rest over a longer period of time results in less damage to the passengers.

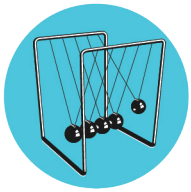
5. A car of mass 1800kg accelerates from rest to a velocity of 16m/s in 8 seconds. Calculate the force required for this to happen.



Collisions: Newton's Laws of Motion
Comprehension Questions

6. A braking force of 6000N brings a car of mass 2400kg to rest from a top speed of 72km/h. Calculate the time taken for the car to come to rest.

7. State Newton's third law of motion. Clearly state the conditions under which Newton's third law of motion applies.



Collisions: Newton's Laws of Motion
Comprehension Questions

8. Newton's third law states that forces occur in pairs and that these forces are equal in size and opposite in direction. How, therefore, can a body ever accelerate?

Use the example of the person pulling the box below to help you explain why the person can pull the sledge and make it accelerate?.