Linear Momentum

AP Physics C: Mechanics · Vocabulary in context

Word	Example
Linear momentum /ˈlɪnɪə məʊˈmentəm/	**Linear momentum** is mass times velocity.
mass /mæs/	The **mass** of this bag of rice is 5 kg. 5 kg
velocity /vəˈlɒsɪti/	The ball's **velocity** is 5 m/s to the left. 5 m/s
vector /ˈvektə/	Velocity is a **vector** because it has a direction.
collisions /kəˈlɪʒnz/	Momentum is conserved in **collisions**.
explosions /ekˈspləʊʒnz/	In **explosions**, the total momentum stays the same.
system /ˈsɪstəm/	A pond is a **system** with water, plants and animals.
center of mass /ˈsentə ɒv mæs/	The **center of mass** is the balance point.
Newton's second law /ˈnjuːtnz ˈsekənd lɔː/	**Newton's second law** says F = ma. F = ma
conveyor belt	Sand falling onto a **conveyor belt** adds mass at a steady rate.
rocket	A **rocket** loses mass as it burns fuel.
impulse /ˈɪmpʌls/	A kick gives the ball an **impulse**.
time integral	Impulse is the **time integral** of force.

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impulse–momentum theorem /ˈɪmpʌls məʊˈmentəm ˈθɪərəm/	The **impulse–momentum theorem** says impulse equals the change in momentum.
net force /net fɔːs/	The **net force** is the sum of all forces.
force–time graph	The area under a **force–time graph** is impulse.
area /ˈeərɪə/	The integral gives the **area** under the curve.
slope /sləʊp/	A steeper line has a larger **slope**.
instant	Find the rate at the **instant** when the radius is 3 cm. 3 cm
airbags	**Airbags** make the stop take longer, so the force is smaller.
crumple zones	**Crumple zones** make a car stop more gently in a crash.
Internal forces /ɪnˈtɜːnl ˈfɔːsɪz/	**Internal forces** cannot change the total momentum.
net external force /net ekˈstɜːnl fɔːs/	With no **net external force**, momentum stays the same.
conserved /kənˈsɜːvd/	Charge is **conserved**: none is lost at the junction.
axis /ˈæksɪs/	Label each **axis** of the graph.
kinetic energy /kɪˈnetɪk ˈenədʒi/	A fast car has a lot of **kinetic energy**.
elastic collision /ɪˈlæstɪk kəˈlɪʒn/	In an **elastic collision**, no kinetic energy is lost.

Word	Example
inelastic collision /ɪnɪ'læstɪk kə'lɪʒn/	Two cars that stick together have an **inelastic collision**.
deformation /ˌdi:fɔ:'meɪʃn/	The dent in the car is a **deformation**.
perfectly inelastic collision /'pɜ:fektlɪ ɪnɪ'læstɪk kə'lɪʒn/	In a **perfectly inelastic collision**, the two objects stick together.
center-of-mass frame	In the **center-of-mass frame**, total momentum is zero.
component /kəm'pəʊnənt/	Find the vertical **component** of the ball's velocity.

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