Linear Momentum

AP Physics 1 · Vocabulary in context

Word	Example
Linear momentum /ˈlɪnɪə məʊˈmentəm/	**Linear momentum** is mass times velocity.
impulse /ˈɪmpʌls/	A kick gives the ball an **impulse**.
impulse–momentum theorem /ˈɪmpʌls məʊˈmentəm ˈθɪərəm/	The **impulse–momentum theorem** says impulse equals the change in momentum.
force–time graph	The area under a **force–time graph** is impulse.
area /ˈeərɪə/	The **area** under a velocity–time graph is the displacement.
airbags	**Airbags** make the stop take longer, so the force is smaller.
average force	The **average force** is impulse divided by time.
peak /piːk/	The **peak** voltage is 325 V.
net external force /net ekˈstɜːnl fɔːs/	With no **net external force**, momentum stays the same.
conserved /kənˈsɜːvd/	Energy is **conserved**: the total stays the same.
third-law pairs	**Third-law pairs** act on different objects.
collisions /kəˈlɪʒnz/	More **collisions** between enzyme and substrate speed up the reaction.
explosions /ekˈspləʊʒnz/	In **explosions**, the total momentum stays the same.

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rockets	**Rockets** push gas backward to move forward.
center-of-mass velocity /ˈsentə ɒv mæs vəˈlɒsɪti/	The **center-of-mass velocity** stays the same with no outside force.
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.
inelastic collision /ɪnɪˈlæstɪk kəˈlɪʒn/	Two cars that stick together have an **inelastic collision**.
deformation /ˌdiːfɔːˈmeɪʃn/	The dent in the car is a **deformation**.
perfectly inelastic /ˈpɜːfektlɪ ɪnɪˈlæstɪk/	In a **perfectly inelastic** collision, objects stick together.
stick together	The two carts **stick together** after the crash.
stationary /ˈsteɪʃənəri/	The second cart was **stationary** before the collision.
system /ˈsɪstəm/	A pond is a **system** with water, plants and animals.
net external impulse	With no **net external impulse**, momentum is conserved.
internal force /ɪnˈtɜːnl fɔːs/	An **internal force** acts inside the system.
external force /ekˈstɜːnl fɔːs/	No **external force** acts, so the total momentum stays the same.
friction /ˈfrɪkʃn/	**Friction** between the tyres and the road stops the car sliding.

Word	Example
gravity /ˈgrævɪti/	**Gravity** pulls the ball back down.
momentum bar chart	A **momentum bar chart** shows momentum before and after.
ballistic pendulum	A **ballistic pendulum** measures the speed of a bullet.
negligible /ˈneglɪdʒəbl/	For a heavy stone, air resistance is **negligible**.
vector /ˈvektə/	Velocity is a **vector** because it has a direction.
axis /ˈæksɪs/	The wheel spins about its **axis**.
justify	**Justify** your answer with a physics law.
carts	Two **carts** collide on a track.
track	The carts roll along a straight **track**.
recoil /rɪˈkɔɪl/	A gun moves back when it fires; we call this **recoil**.

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