Forces, density and pressure

A-Level Physics · Vocabulary in context

Word	Example
force /fɔːs/	You use a **force** to push a door open.
principle of moments /ˈprɪnsɪpl ɒv ˈməʊmənts/	The see-saw balances, as the **principle of moments** says.
moment /ˈməʊmənt/	A long spanner gives a larger **moment**.
centre of gravity /ˈsentə ɒv ˈgrævɪti/	A bus tips over if its **centre of gravity** is too high.
weight /weɪt/	Your **weight** is the pull of the Earth on you.
centre of mass /ˈsentə ɒv mæs/	The **centre of mass** of a ruler is in its middle.
free-body diagram /friː ˈbɒdi ˈdaɪəgræm/	Draw a **free-body diagram** with an arrow for each force.
equilibrium /ˌiːkwɪˈlɪbrɪəm/	The book is in **equilibrium** because the forces balance.
plumb line /plʌm laɪn/	A **plumb line** hangs straight down.
vertical /ˈvɜːtɪkl/	A falling stone moves in a **vertical** line.
line of action /laɪn ɒv ˈækʃn/	The **line of action** of the weight passes through the centre of gravity.
pivot /ˈpɪvət/	The see-saw turns about its **pivot**.
torque /tɔːk/	Turning a tap needs a small **torque**.

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non-uniform /nɒn ˈjuːnɪfɔːm/	A **non-uniform** rod is heavier at one end.
perpendicular distance /ˌpɜːpənˈdɪkjʊlə ˈdɪstəns/	Measure the **perpendicular distance** from the pivot to the force.
perpendicular /ˌpɜːpənˈdɪkjʊlə/	The wall is **perpendicular** to the floor.
lever arm /ˈliːvə ɑːm/	A longer **lever arm** makes the door easier to open.
horizontal /ˌhɒrɪˈzɒntl/	The floor is **horizontal**.
clockwise /ˈklɒkwaɪz/	The hands of a clock turn **clockwise**.
anticlockwise /ˌæntɪˈklɒkwaɪz/	Turn the lid **anticlockwise** to open the jar.
couple /ˈkʌpl/	Your two hands on a steering wheel make a **couple**.
resultant force /rɪˈzʌltənt fɔːs/	If the **resultant force** is zero, the speed does not change.
translation /træn'sleɪʃn/	In **translation**, every part of the object moves the same way.
angular acceleration /ˈæŋgjʊlə əkˌseləˈreɪʃn/	A wheel that spins faster and faster has an **angular acceleration**.
tension /ˈtenʃn/	The **tension** in the rope holds up the lamp.
component /kəmˈpəʊnənt/	Find the vertical **component** of the ball's velocity.
vector triangle /ˈvektə ˈtraiæŋgl/	Draw the three forces head to tail to make a **vector triangle**.

Word	Example
closed vector triangle /kləʊzd ˈvektə ˈtraɪæŋgl/	The forces balance, so they form a **closed vector triangle**.
sine rule /saɪn ruːl/	Use the **sine rule** to find the missing side.
cosine rule /ˈkəʊsaɪn ruːl/	Use the **cosine rule** when you know two sides and the angle between them.
density /ˈdensɪti/	Iron has a higher **density** than wood, so it sinks in water.
floating /ˈfləʊtɪŋ/	A **floating** boat has upthrust equal to its weight.
scalar /ˈskeɪlə/	Mass is a **scalar** because it has no direction.
pressure /ˈpreʃə/	A sharp knife puts a large **pressure** on the bread.
atmospheric pressure /ˌætməsˈferɪk ˈpreʃə/	**Atmospheric pressure** is the push of the air around us.
hydrostatic pressure /ˌhaɪdrəˈstætɪk ˈpreʃə/	**Hydrostatic pressure** gets larger as you dive deeper.
fluid /ˈfluːɪd/	Air and water are both a **fluid**.
cross-sectional area /krɒs ˈsekʃənl ˈeərɪə/	A thick wire has a large **cross-sectional area**.
depth /depθ/	The pressure grows with **depth** under water.
upthrust /ˈʌpθrʌst/	**Upthrust** from the water holds up a boat.

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Word	Example
Archimedes' principle /ˌɑːkɪˈmiːdiːz ˈprɪnsɪpl/	**Archimedes' principle** says upthrust equals the weight of water pushed away.
submerged /səbˈmɜːdʒd/	The stone is fully **submerged** in the water.
displaced /dɪˈspleɪst/	The stone **displaced** 50 cm^3 of water. 50 cm^3
newton meter /ˈnjuːtn ˈmiːtə/	Hang the mass on a **newton meter** to read its weight.
incompressible /ˌɪnkəmˈpresəbl/	Water is almost **incompressible**: you cannot squash it.