Motion, forces and energy

IGCSE Physics · Vocabulary in context

Word	Example
measurement /ˈmeʒəmənt/	Repeat each **measurement** three times.
ruler /ˈruːlə/	Use the marks on a **ruler** to measure length.
measuring cylinder /ˈmeʒərɪŋ ˈsɪlɪndə/	A **measuring cylinder** measures a rough volume of liquid.
meniscus /ˈmenɪskəs/	Read the volume at the bottom of the **meniscus**.
stopwatch /ˈstɒpwɒtʃ/	A **stopwatch** measures how long a race takes.
digital timer /ˈdɪdʒɪtl ˈtaɪmə/	A **digital timer** shows the time as numbers.
reaction time /rɪˈækʃn taɪm/	Your **reaction time** is the delay before you press the stopwatch.
measure many and divide /ˈmeʒə ˈmeni ænd dɪˈvaɪd/	**Measure many and divide**: time ten swings and divide by ten.
pendulum /ˈpendjʊləm/	A **pendulum** swings back and forth.
period /ˈpɪərɪəd/	The **period** of the wave is 0.02 s. 0.02 s
uncertainty /ʌnˈsɜːtənti/	The length is 25.0 cm with an **uncertainty** of 0.1 cm. 25.0 cm 0.1 cm
parallax /ˈpærəlæks/	Look straight at the scale to avoid **parallax** errors.
zero error /ˈzɪərəʊ ˈerə/	The meter shows 0.2 V with nothing connected: a **zero error**. 0.2 V

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anomalous result /əˈnɒmələs rɪˈzʌlt/	Repeat the treatment before deciding how to handle an **anomalous result**.
line of best fit /laɪn ɒv best fɪt/	Draw a **line of best fit** through the points.
scalar quantity /ˈskeɪlə ˈkwɒntɪti/	Mass is a **scalar quantity**: it has size but no direction.
magnitude /ˈmægnɪtjuːd/	The force has a **magnitude** of 20 N. 20 N
vector quantity /ˈvektə ˈkwɒntɪti/	Force is a **vector quantity**: it has size and direction.
mass /mæs/	The **mass** of this bag of rice is 5 kg. 5 kg
energy /ˈenədʒi/	Food gives your body the **energy** it needs to move.
temperature /ˈtemprɪtʃə/	The thermometer shows the water's **temperature**.
force /fɔːs/	You use a **force** to push a door open.
weight /weɪt/	Your **weight** is the pull of the Earth on you.
velocity /vəˈlɒsɪti/	The ball's **velocity** is 5 m/s to the left. 5 m/s
acceleration /əkˌseləˈreɪʃn/	The car speeds up quickly, so its **acceleration** is large.
momentum /məʊˈmentəm/	A heavy truck has a lot of **momentum**.
electric field strength /ɪˈlektrɪk fiːld streŋθ/	Near the charged ball, the **electric field strength** is 500 N/C. 500 N/C
gravitational field strength /ˌgrævɪˈteɪʃənl fiːld streŋθ/	The **gravitational field strength** on Earth is 9.81 N/kg. 9.81 N/kg

Word	Example
resultant /rɪ'zʌltənt/	The **resultant** of 3 N and 4 N at right angles is 5 N. 3 N 4 N 5 N
motion /'məʊʃn/	Heating increases the **motion** of the particles.
speed /spi:d/	The bus moves at a **speed** of 15 m/s. 15 m/s
deceleration /dɪˌselə'reɪʃn/	**Deceleration** means slowing down.
distance–time graph /'dɪstəns taɪm græf/	A steep line on a **distance–time graph** means fast motion.
at rest /æt rest/	The particle is **at rest** when its velocity is zero.
gradient /'greɪdɪənt/	The **gradient** of a distance-time graph gives the speed.
speed–time graph /spi:d taɪm græf/	A flat line on a **speed–time graph** means constant speed.
area under the line /'eərɪə 'ʌndə ðə laɪn/	The **area under the line** of a speed–time graph gives the distance.
uniform /'ju:nɪfɔ:m/	The weight of a **uniform** rod acts at its middle.
acceleration of free fall /əkˌselə'reɪʃn ɒv fri: fɔ:l/	The **acceleration of free fall** on Earth is 9.81 m/s^2. 9.81 m/s^2
air resistance /eə rɪ'zɪstəns/	**Air resistance** slows down a falling leaf.
terminal velocity /'tɜ:mɪnl və'lɒsɪti/	A skydiver falling at a steady speed has reached **terminal velocity**.
matter /'mætə/	All **matter** is made of tiny particles.

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Word	Example
balance /'bæləns/	Weigh the solid on a **balance**.
density /'densɪti/	Iron has a higher **density** than wood, so it sinks in water.
regular solid /'regjʊlə 'sɒlɪd/	A cube is a **regular solid**: you can work out its volume with a ruler.
irregular solid /ɪ'regjʊlə 'sɒlɪd/	A stone is an **irregular solid**.
displacement method /dɪ'spleɪsmənt 'meθəd/	Use the **displacement method** to find a stone's volume.
floats /fləʊts/	A cork **floats** on water.
shape /ʃeɪp/	A force can change an object's **shape**.
extension /ek'stenʃn/	The **extension** of the spring is 4 cm. 4 cm
load–extension graph /ləʊd ek'stenʃn græf/	A **load–extension graph** shows how a spring stretches.
limit of proportionality /'lɪmɪt ɒv prəˌpɔ:ʃə'nælɪti/	After the **limit of proportionality**, the graph is no longer straight.
spring constant /sprɪŋ 'kɒnstənt/	A stiff spring has a large **spring constant**.
resultant force /rɪ'zʌltənt fɔ:s/	If the **resultant force** is zero, the speed does not change.
circular motion /'sɜ:kjʊlə 'məʊʃn/	A car going round a roundabout is in **circular motion**.

Word	Example
radius /ˈreɪdɪəs/	The **radius** of a circle is the distance from the centre to the edge.
friction /ˈfrɪkʃn/	**Friction** between the tyres and the road stops the car sliding.
moment /ˈməʊmənt/	A long spanner gives a larger **moment**.
pivot /ˈpɪvət/	The see-saw turns about its **pivot**.
principle of moments /ˈprɪnsɪpl ɒv ˈməʊmənts/	The see-saw balances, as the **principle of moments** says.
equilibrium /ˌiːkwɪˈlɪbrɪəm/	The book is in **equilibrium** because the forces balance.
centre of gravity /ˈsentə ɒv ˈgrævɪti/	A bus tips over if its **centre of gravity** is too high.
lamina /ˈlæmɪnə/	A **lamina** is a flat shape with no thickness.
stability /stəˈbɪlɪti/	A low centre of gravity gives a bus **stability**.
stable /ˈsteɪbl/	A **stable** sort keeps equal items in the same order.
impulse /ˈɪmpʌls/	A kick gives the ball an **impulse**.
conservation of momentum /ˌkɒnsəˈveɪʃn ɒv məʊˈmentəm/	**Conservation of momentum** means the total momentum stays the same.
stored /stɔːd/	A raised book has energy **stored** because of its height.
kinetic /kɪˈnetɪk/	A moving car has **kinetic** energy.

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gravitational potential /ˌgrævɪˈteɪʃənl pəˈtenʃl/	Lifting a book gives it more **gravitational potential** energy.
chemical /ˈkemɪkl/	Food stores **chemical** energy.
elastic (strain) /ɪˈlæstɪk/	A stretched spring stores **elastic (strain)** energy.
nuclear /ˈnjuːklɪə/	A **nuclear** power station gets energy from splitting atoms.
electrostatic /ɪˌlektrəʊˈstætɪk/	Pulling two opposite charges apart stores **electrostatic** energy.
internal (thermal) /ɪnˈtɜːnl/	A hot drink has a lot of **internal (thermal)** energy.
transferred /trænsˈfɜːd/	Energy is **transferred** from the hot pan to the water.
principle of conservation of energy /ˈprɪnsɪpl ɒv ˌkɒnsəˈveɪʃn ɒv ˈenədʒi/	The **principle of conservation of energy** says energy is never made or lost.
Sankey diagram /ˈsæŋki ˈdaɪəgræm/	A **Sankey diagram** shows where the energy goes.
wasted /ˈweɪstɪd/	Heat from a light bulb is **wasted** energy.
work done /wɜːk dʌn/	**Work done** is force times distance.
joule /dʒuːl/	Lifting an apple by one metre takes about one **joule** of energy.
power /ˈpaʊə/	A 60 W lamp has a **power** of 60 watts. 60 W 60
watt /wɒt/	One **watt** means one joule every second.

Word	Example
efficiency /ɪˈfɪʃənsi/	A lamp with 20% **efficiency** turns only a fifth of its energy into light. 20%
renewability /rɪˌnjuːəˈbɪlɪti/	Solar power scores high on **renewability**: the Sun keeps shining.
availability /əˌveɪləˈbɪlɪti/	Wind power has low **availability** on calm days.
reliability /rɪˌlaɪəˈbɪlɪti/	Getting similar results again and again shows **reliability**.
scale /skeɪl/	A large dam is a big-**scale** energy project.
environmental impact /enˌvaɪrənˈmentl ˈɪmpækt/	Coal has a big **environmental impact**: it pollutes the air.
nuclear fusion /ˈnjuːklɪə ˈfjuːʒn/	**Nuclear fusion** powers the Sun.
pressure /ˈpreʃə/	A sharp knife puts a large **pressure** on the bread.
pascal /ˈpæskl/	The **pascal** is the unit of pressure.
depth /depθ/	The pressure grows with **depth** under water.

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