

Index

A

adhesive forces

6.7: Cohesion and Adhesion in Liquids - Surface Tension and Capillary Action

adiabatic process

12.3: The First Law of Thermodynamics and Some Simple Processes

ampere (unit)

8.2: Current

Angular momentum

5.7: Angular Momentum and Its Conservation

Archimedes' principle

6.6: Archimedes' Principle

B

basal metabolic rate

3.6: Work, Energy, and Power in Humans

buoyant force

6.6: Archimedes' Principle

C

capillary action

6.7: Cohesion and Adhesion in Liquids - Surface Tension and Capillary Action

Carnot cycle

12.5: Carnot's Perfect Heat Engine- The Second Law of Thermodynamics Restated

Carnot efficiency

12.5: Carnot's Perfect Heat Engine- The Second Law of Thermodynamics Restated

Carnot engine

12.5: Carnot's Perfect Heat Engine- The Second Law of Thermodynamics Restated

center of gravity

5.3: The Second Condition for Equilibrium

change in entropy

12.7: Entropy and the Second Law of Thermodynamics- Disorder and the Unavailability of Energy

change in momentum

4.3: Impulse

chemical energy

3.5: Conservation of Energy

coefficient of performance

12.6: Applications of Thermodynamics- Heat Pumps and Refrigerators

cohesive forces

6.7: Cohesion and Adhesion in Liquids - Surface Tension and Capillary Action

conductor

7.3: Conductors and Insulators

Conservation of angular momentum

5.7: Angular Momentum and Its Conservation

conservation of momentum principle

4.4: Conservation of Momentum

Contact Angle

6.7: Cohesion and Adhesion in Liquids - Surface Tension and Capillary Action

converging lens

11.6: Image Formation by Lenses

converging mirror

11.7: Image Formation by Mirrors

Coulomb force

7.4: Coulomb's Law

Coulomb's Law

7.4: Coulomb's Law

Curie temperature

9.3: Ferromagnets and Electromagnets

current

8.2: Current

cyclical process

12.4: Introduction to the Second Law of Thermodynamics - Heat Engines and their Efficiency

D

density

6.3: Density

direction of magnetic field lines

9.4: Magnetic Fields and Magnetic Field Lines

Dispersion

11.5: Dispersion - Rainbows and Prisms

diverging lens

11.6: Image Formation by Lenses

diverging mirror

11.7: Image Formation by Mirrors

domains

9.3: Ferromagnets and Electromagnets

drift velocity

8.2: Current

dynamic equilibrium

5.2: The First Condition for Equilibrium

Dynamics

2.2: Development of Force Concept

E

efficiency

3.5: Conservation of Energy

Elastic collision

4.5: Elastic Collisions in One Dimension

electric charge

7.2: Static Electricity and Charge - Conservation of Charge

electric current

8.2: Current

electric energy

8.5: 20.4 Electric Power and Energy

Electric generators

10.5: Electric Generators

electric potential

7.6: Electric Potential Energy- Potential Difference

electric power

8.5: 20.4 Electric Power and Energy

electrical energy

3.5: Conservation of Energy

Electromagnet

9.3: Ferromagnets and Electromagnets

Electromagnetic force

7.1: Prelude to Electric Charge and Electric Field

Electromagnetic induction

10.2: Induced Emf and Magnetic Flux

electromagnetism

9.3: Ferromagnets and Electromagnets

Electron

7.2: Static Electricity and Charge - Conservation of Charge

electron volt

7.6: Electric Potential Energy- Potential Difference

electrostatic force

7.4: Coulomb's Law

electrostatic repulsion

7.3: Conductors and Insulators

emf

10.4: Motional Emf

energy

3.2: Work- The Scientific Definition

entropy

12.7: Entropy and the Second Law of Thermodynamics- Disorder and the Unavailability of Energy

equilibrium

5.2: The First Condition for Equilibrium

5.3: The Second Condition for Equilibrium

5.5: Forces and Torques in Muscles and Joints

external force

2.2: Development of Force Concept

F

Faraday's Law

10.3: Faraday's Law of Induction- Lenz's Law

Faraday's law of induction

10.3: Faraday's Law of Induction- Lenz's Law

ferromagnetic

9.3: Ferromagnets and Electromagnets

first law of thermodynamics

12.2: The First Law of Thermodynamics

fluid

6.2: What Is a Fluid?

6.5: Variation of Pressure with Depth in a Fluid

Fluids

6.2: What Is a Fluid?

6.5: Variation of Pressure with Depth in a Fluid

focal length

11.6: Image Formation by Lenses

focal point

11.6: Image Formation by Lenses

force

2.2: Development of Force Concept

forces

2.4: Newton's Second Law of Motion- Concept of a System

5.5: Forces and Torques in Muscles and Joints

fossil fuels

3.7: World Energy Use

free electron

7.3: Conductors and Insulators

G

Galilean relativity

1.3: 1.3 Galilean Relativity

gauss

9.5: Magnetic Field Strength- Force on a Moving Charge in a Magnetic Field

generators

10.5: Electric Generators

geometric optics

[11.2: The Ray Aspect of Light](#)

Gravitational potential energy

[3.4: Gravitational Potential Energy](#)

grounded.

[7.3: Conductors and Insulators](#)

H

heat engine

[12.3: The First Law of Thermodynamics and Some Simple Processes](#)

heat pump

[12.6: Applications of Thermodynamics- Heat Pumps and Refrigerators](#)

human metabolism

[12.2: The First Law of Thermodynamics](#)

I

Impulse

[4.3: Impulse](#)

index of refraction

[11.4: The Law of Refraction](#)

induced emf

[10.2: Induced Emf and Magnetic Flux](#)

induction

[7.3: Conductors and Insulators](#)

Inelastic collision

[4.6: Inelastic Collisions in One Dimension](#)

Inertia

[2.3: Newton's First Law of Motion - Inertia](#)

insulator

[7.3: Conductors and Insulators](#)

internal energy

[12.2: The First Law of Thermodynamics](#)

internal kinetic energy

[4.5: Elastic Collisions in One Dimension](#)

irreversible process

[12.4: Introduction to the Second Law of Thermodynamics - Heat Engines and their Efficiency](#)

isobaric process

[12.3: The First Law of Thermodynamics and Some Simple Processes](#)

isochoric process

[12.3: The First Law of Thermodynamics and Some Simple Processes](#)

isolated system

[4.4: Conservation of Momentum](#)

isothermal process

[12.3: The First Law of Thermodynamics and Some Simple Processes](#)

J

joule

[3.2: Work- The Scientific Definition](#)

K

kinetic energy

[3.3: Kinetic Energy and the Work-Energy Theorem](#)

L

law of conservation of charge

[7.2: Static Electricity and Charge - Conservation of Charge](#)

law of conservation of energy

[3.5: Conservation of Energy](#)

Law of inertia

[2.3: Newton's First Law of Motion - Inertia](#)

law of reflection

[11.3: The Law of Reflection](#)

[11.7: Image Formation by Mirrors](#)

Lenz's Law

[10.3: Faraday's Law of Induction- Lenz's Law](#)

Linear momentum

[4.2: Linear Momentum and Force](#)

Lorentz force

[9.5: Magnetic Field Strength- Force on a Moving Charge in a Magnetic Field](#)

M

machines

[5.4: Simple Machines](#)

magnetic field

[9.4: Magnetic Fields and Magnetic Field Lines](#)

magnetic field lines

[9.4: Magnetic Fields and Magnetic Field Lines](#)

magnetic flux

[10.2: Induced Emf and Magnetic Flux](#)

Magnetic force

[9.5: Magnetic Field Strength- Force on a Moving Charge in a Magnetic Field](#)

[9.6: Magnetic Force on a Current-Carrying Conductor](#)

magnetic monopoles

[9.3: Ferromagnets and Electromagnets](#)

magnetic pole

[9.2: Magnets](#)

magnetism

[9: Magnetism](#)

magnetized

[9.3: Ferromagnets and Electromagnets](#)

Magnification

[11.6: Image Formation by Lenses](#)

mass

[2.3: Newton's First Law of Motion - Inertia](#)

mechanical advantage

[5.4: Simple Machines](#)

mechanical energy

[7.6: Electric Potential Energy- Potential Difference](#)

metabolic rate

[3.6: Work, Energy, and Power in Humans](#)

mirror

[11.3: The Law of Reflection](#)

monopoles

[9.3: Ferromagnets and Electromagnets](#)

motational emf

[10.4: Motional Emf](#)

muscles

[5.5: Forces and Torques in Muscles and Joints](#)

N

net work

[3.3: Kinetic Energy and the Work-Energy Theorem](#)

Newton's third law of motion

[2.5: Newton's Third Law of Motion- Symmetry in Forces](#)

north magnetic pole

[9.2: Magnets](#)

nuclear energy

[3.5: Conservation of Energy](#)

O

ohm

[8.3: Ohm's Law - Resistance and Simple Circuits](#)

Ohm's law

[8.3: Ohm's Law - Resistance and Simple Circuits](#)

ohmic

[8.3: Ohm's Law - Resistance and Simple Circuits](#)

Otto cycle

[12.4: Introduction to the Second Law of Thermodynamics - Heat Engines and their Efficiency](#)

P

perfectly inelastic collision

[4.6: Inelastic Collisions in One Dimension](#)

perpendicular lever arm

[5.3: The Second Condition for Equilibrium](#)

polarization

[7.3: Conductors and Insulators](#)

potential difference

[7.6: Electric Potential Energy- Potential Difference](#)

power

[11.6: Image Formation by Lenses](#)

Pressure

[6.4: Pressure](#)

[6.5: Variation of Pressure with Depth in a Fluid](#)

proton

[7.2: Static Electricity and Charge - Conservation of Charge](#)

Q

Quarks

[4.4: Conservation of Momentum](#)

R

radiant energy

[3.5: Conservation of Energy](#)

rainbow

[11.5: Dispersion - Rainbows and Prisms](#)

ray

[11.2: The Ray Aspect of Light](#)

real image

[11.6: Image Formation by Lenses](#)

refraction

[11.4: The Law of Refraction](#)

renewable forms of energy

[3.7: World Energy Use](#)

resistivity

[8.4: Resistance and Resistivity](#)

resistance

[8.3: Ohm's Law - Resistance and Simple Circuits](#)

[8.4: Resistance and Resistivity](#)

reversible process

[12.3: The First Law of Thermodynamics and Some Simple Processes](#)

right hand rule

[9.5: Magnetic Field Strength- Force on a Moving Charge in a Magnetic Field](#)

S

Second Law of Motion

[4.2: Linear Momentum and Force](#)

second law of thermodynamics

[12.4: Introduction to the Second Law of Thermodynamics - Heat Engines and their Efficiency](#)

second law of thermodynamics stated in terms of entropy

[12.7: Entropy and the Second Law of Thermodynamics- Disorder and the Unavailability of Energy](#)

SI units of torque

[5.3: The Second Condition for Equilibrium](#)

simple circuit

[8.3: Ohm's Law - Resistance and Simple Circuits](#)

Snell's law of refraction

[11.4: The Law of Refraction](#)

south magnetic pole

[9.2: Magnets](#)

Specific gravity

[6.6: Archimedes' Principle](#)

static electricity

[7.1: Prelude to Electric Charge and Electric Field](#)

Static Equilibrium

[5.2: The First Condition for Equilibrium](#)

surface tension

[6.7: Cohesion and Adhesion in Liquids - Surface Tension and Capillary Action](#)

system

[2.4: Newton's Second Law of Motion- Concept of a System](#)

T

tesla

[9.5: Magnetic Field Strength- Force on a Moving Charge in a Magnetic Field](#)

thermal energy

[3.5: Conservation of Energy](#)

thrust

[2.5: Newton's Third Law of Motion- Symmetry in Forces](#)

Torque

[5.3: The Second Condition for Equilibrium](#)

torques

[5.5: Forces and Torques in Muscles and Joints](#)

U

useful work

[3.6: Work, Energy, and Power in Humans](#)

V

virtual image

[11.6: Image Formation by Lenses](#)

voltage

[7.6: Electric Potential Energy- Potential Difference](#)

W

Work

[3.2: Work- The Scientific Definition](#)