Thermodynamics

AP Physics 2 · Vocabulary in context

Word	Example
Thermodynamics /ˌθɜːməʊdaɪˈnæmɪks/	**Thermodynamics** tells us whether a reaction can happen.
kinetic theory /kɪˈnetɪk ˈθɪəri/	The **kinetic theory** says gas particles move fast in random directions.
Temperature /ˈtemprɪtʃə/	The thermometer measures the water's **temperature**.
Pressure /ˈpreʃə/	**Pressure** is force divided by area.
root-mean-square speed	The **root-mean-square speed** of gas particles rises as the gas gets hotter.
ideal gas /aɪˈdɪəl gæs/	An **ideal gas** follows $pV = nRT$ exactly. $$pV = nRT$$
absolute zero /ˈæbsəluːt ˈzɪərəʊ/	Nothing can be colder than **absolute zero**.
Heat /hiːt/	**Heat** flows from hot objects to cold ones.
thermal equilibrium /ˈθɜːml ˌiːkwɪˈlɪbrɪəm/	The tea and the cup reach **thermal equilibrium** at the same temperature.
conduction /kənˈdʌkʃn/	**Conduction** passes heat through a solid.
convection /kənˈvekʃn/	**Convection** carries warm air up from a heater.
radiation /ˌreɪdɪˈeɪʃn/	**Radiation** from the source can damage cells.
first law /fɜːst lɔː/	The **first law** of thermodynamics says energy is never made or destroyed.

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internal energy /ɪnˈtɜːnl ˈenədʒi/	Heating the gas raises its **internal energy**.
isovolumetric	In an **isovolumetric** process the gas volume stays constant, so the gas does no work.
Isobaric	**Isobaric** processes happen at constant pressure, so the work done equals pressure times the change in volume.
Isothermal /ˌaɪsəˈθɜːml/	In an **isothermal** process, the gas temperature stays the same.
Adiabatic /ˌædiəˈbætɪk/	In an **adiabatic** process, no heat goes in or out of the gas.
isotherm	An **isotherm** is a curve at one temperature.
Specific heat /spəˈsɪfɪk hiːt/	Water has a high **specific heat**, so it warms up slowly.
Thermal conductivity /ˈθɜːml kɒndəkˈtɪvɪti/	Copper has a high **thermal conductivity**, so it passes heat quickly.
Entropy /ˈentrəpi/	**Entropy** measures how spread out energy and matter are.
second law /ˈsekənd lɔː/	The **second law** says heat flows by itself from hot to cold.