Thermal energy transfers

International Baccalaureate · IB Diploma · Physics · HL · Vocabulary in context

Word	Example
molecular model	The **molecular model** explains matter as moving particles.
density /ˈdensɪti/	Iron has a higher **density** than wood, so it sinks in water.
Celsius scale	On the **Celsius scale**, water freezes at 0 °C.
Kelvin scale /ˈkelvɪn skeɪl/	The **Kelvin scale** starts at absolute zero.
absolute zero /ˈæbsəluːt ˈzɪərəʊ/	Nothing can be colder than **absolute zero**.
average kinetic energy /ˈævrɪdʒ kɪˈnetɪk ˈenədʒi/	Hot gas particles have a higher **average kinetic energy**.
Boltzmann constant /ˈbɒltsmən ˈkɒnstənt/	k is the **Boltzmann constant**.
internal energy /ɪnˈtɜːnl ˈenədʒi/	Heating the gas raises its **internal energy**.
thermal equilibrium /ˈθɜːml ˌiːkwɪˈlɪbrɪəm/	The tea and the cup reach **thermal equilibrium** at the same temperature.
specific heat capacity /spəˈsɪfɪk hiːt kəˈpæsɪti/	Water has a high **specific heat capacity**, so it warms up slowly.
phase change /feɪz tʃeɪndʒ/	Melting is a **phase change**.
melting /ˈmeltɪŋ/	**Melting** turns ice into water.

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freezing /'fri:zɪŋ/	**Freezing** turns water into ice.
boiling /'bɔɪlɪŋ/	During **boiling**, bubbles form all through the water.
condensing /kən'densɪŋ/	Steam **condensing** on a cold window forms drops of water.
specific latent heat /spə'sɪfɪk 'leɪtənt hi:t/	The **specific latent heat** is the energy to melt or boil 1 kg. 1 kg
specific latent heat of fusion /spə'sɪfɪk 'leɪtənt hi:t ɒv 'fju:ʒn/	The **specific latent heat of fusion** of ice is 334 kJ/kg. 334 kJ/kg
specific latent heat of vaporization	The **specific latent heat of vaporization** of water is 2260 kJ/kg. 2260 kJ/kg
evaporation /ɪˌvæpə'reɪʃn/	**Evaporation** dries wet clothes.
conduction /kən'dʌkʃn/	Metal pans heat food by **conduction**.
thermal conductivity /'θɜ:ml kɒndək'tɪvɪti/	Copper has a high **thermal conductivity**.
temperature gradient	A large **temperature gradient** makes heat flow fast.
convection /kən'vekʃn/	**Convection** carries warm air up from a heater.
convection current	A **convection current** moves the water in a pot.
thermal radiation /'θɜ:ml ˌreɪdɪ'eɪʃn/	The Sun warms us by **thermal radiation**.
black body /blæk 'bɒdi/	A perfect **black body** absorbs all light.

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luminosity /ˌluːmɪˈnɒsɪti/	The **luminosity** of a star is its total power.
Stefan–Boltzmann constant /ˈstefən ˈbɒltsmən ˈkɒnstənt/	σ is the **Stefan–Boltzmann constant**. σ -
Wien's displacement law /viːnz dɪˈspleɪsmənt lɔː/	**Wien's displacement law** says hotter stars look bluer.
apparent brightness	A nearby star has a large **apparent brightness**.

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