## The second law of thermodynamics



•	Explain '	whv	all	real	engines	are	less	efficient	than	the	Carnot	engine

• In a real engine does the gas inside the piston return to its original state on completion of a cycle as happens in the Carnot cycle? Explain your reasoning

• Write the Clausius inequality.

• Give a mathematical expression for the second law of thermodynamics

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• Explain in your own words how the mathematical expression you just arrived at for the second law of thermodynamics is derived from the Clausius Inequality.