

# Thermal Physics

Physics

Nudger

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Tutorials

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## Thermal Energy

1. What is the absolute temperature scale, and what is absolute zero? [47]
2. What is internal energy? [47-8]
3. Draw a Maxwell-Boltzmann diagram for a hot and cold substance (on the same graph). [48]
4. What is a closed system. [48]
5. Why is the net flow of thermal energy from hot to cold? [48]
6. Describe an experiment to investigate specific heat capacity. [49-50]
7. What are the four main states of matter? [50]
8. Describe an experiment to investigate latent heat. [51-52]
9. Describe an experiment to investigate Boyle's Law. [53-54]
10. Describe an experiment to investigate Charles's Law. [55-6]
11. Describe an experiment to investigate Gay-Lussac's (Pressure) Law.

## Molecular Kinetic Theory

12. What is relative atomic mass? [57]
13. What is the value of the Avogadro constant and how is it defined? [57]
14. What is molar mass? [57]
15. What is the molar gas constant? [58]
16. What is the Boltzmann constant? [58]
17. What is the work done equation for a gas? [59]
18. Use momentum considerations to derive the pressure equation for an ideal gas. [61-62]
19. What is root mean square speed? [62]
20. What are the assumptions of kinetic theory? [63-64]
21. Derive the average kinetic energy equation for an ideal gas and show that it is

proportional to thermodynamic temperature. [65-66]

22. Under what conditions does the behaviour of a real gas approximate to that of an ideal gas?
23. What is Brownian motion and what how is it explained? [68]