

# Thermodynamics

## Fluids

### BINGO

- H Draw the P-V diagram for an isothermal process.
- S What is  $\text{md}^{-2}$  dimensionally equivalent to?
- O With what velocity would water come out of the bottom of a cup if the height of the water is 0.20m? Assume the velocity of the water at the top is zero.
- J How long would a 30m steel bridge expand on a 303 Kelvin day if the low temperature that night was 283 Kelvin?
- D What is the internal energy of 1 mole of an ideal gas with a temperature of 20 degrees Celsius?
- N A gas expands from  $V$  to  $3V$  while decreasing in pressure from  $2P$  to  $P$ . What is the change in internal energy?
- P What is the work done by/or the gas?
- W How much heat is added/taken away?

- E Draw a cyclical thermodynamic process in which a gas expands from  $V$  to  $2V$  at constant pressure  $P$ , then compresses from  $2V$  to  $V$  while changing pressure from  $P$  to  $3P$ , and finally back to its original  $P$  and  $V$ .
- G What is the work done during one cycle?