



**Horizontal**

5. Phenomenon that does not return to its original state naturally (**irreversible**)
7. It remains constant in the steady state (**velocity**)
8. The standard unit for all quantities (**joule**)
9. Phenomenon that returns to its original state naturally (**reversible**)
11. There is no tendency for species to change in phase or maybe in chemical reaction; all the possible chemical reactions need to be in equilibrium. (two words) (**chemicalequilibrium**)
13. It describes the irreversibility of thermodynamic systems (**entropy**)
14. Is a branch of physics, related with energy and work in a system (**thermodynamics**)

**Vertical**

1. Done by the system (**work**)
2. Is when a property (or properties) of a system are unchanging in time (two words) (**steadystate**)
3. Happens when the pressure is constant. (two words) (**mechanicalequilibrium**)
4. The same temperature between system and surroundings (two words) (**thermalequilibrium**)
6. Is a general principle which places constraints upon the direction of and the attainable efficiencies of heat engines (three words) (**thesecondlaw**)
10. It is used extensively in the discussion of heat engines (three words) (**thefirstlaw**)
12. Added to the system (**heat**)