

Answer **all** questions in the spaces provided.

0 1

This question is about lattice enthalpies.

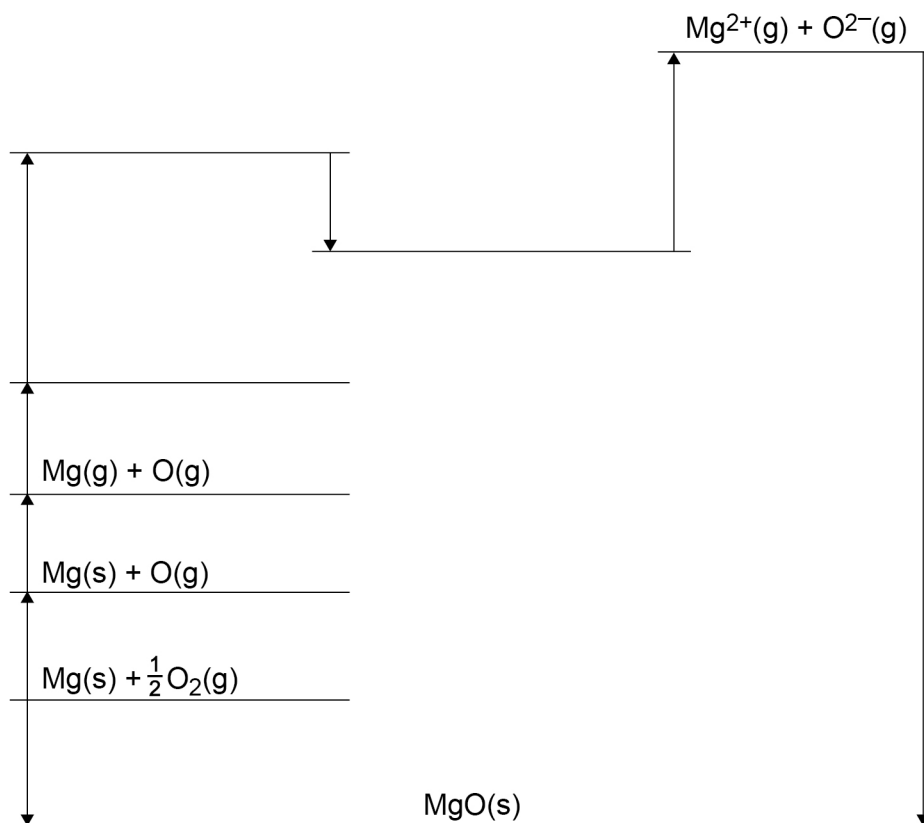
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Figure 1 shows a Born–Haber cycle for the formation of magnesium oxide.

Complete **Figure 1** by writing the missing symbols on the appropriate energy levels.

[3 marks]

Figure 1



0 1 . 2 Table 1 contains some thermodynamic data.

Table 1

| | Enthalpy change / kJ mol^{-1} |
|---|---|
| Enthalpy of formation for magnesium oxide | -602 |
| Enthalpy of atomisation for magnesium | +150 |
| First ionisation energy for magnesium | +736 |
| Second ionisation energy for magnesium | +1450 |
| Bond dissociation enthalpy for oxygen | +496 |
| First electron affinity for oxygen | -142 |
| Second electron affinity for oxygen | +844 |

Calculate a value for the enthalpy of lattice formation for magnesium oxide.

[3 marks]

Enthalpy of lattice formation _____ kJ mol^{-1}

6

Turn over for the next question

Turn over ►

