Chem!stry

Energy Changes in Chemistry

The following passage is about energy changes in *closed* systems, *i.e.* where energy (but not matter) can be exchanged between system and surroundings.   Read the passage and delete (~~*cross out*~~) the incorrect words.

Chemical Reactions

Chemical reactions are accompanied by energy changes. When the energy content of a chemical system decreases during a reaction, the energy content of the products is **greater / less** than that of the reactants. The reaction is said to be **exothermic / endothermic** and a **rise / fall** in temperature is observed. The value of the enthalpy change of the reaction (ΔH) is **positive / negative**.

When the temperature falls during a reaction, the reaction is said to be **exothermic / endothermic**. The energy content of the products is **greater / less** than that of the reactants *i.e.* the energy content of the system has **increased / decreased** during the reaction. ΔH for the reaction is **positive / negative**.

Phase Changes

Phase changes also involve a change in energy content of the system. Alcohol feels cold on the skin because the vaporisation of a liquid is an **exothermic / endothermic** process. As the liquid alcohol evaporates to form alcohol vapour, its energy content **increases / decreases** *i.e.* energy flows   **into / out of** the system. Energy is **taken from / given to** the surroundings (the immediate surroundings is the skin), whose temperature therefore **increases / decreases**.

Steam at 100 °C is said to cause a worse burn than boiling water at the same temperature because the condensation of a vapour to a liquid is an **exothermic / endothermic** process and energy flows **into / out** of the system **from / to** the surroundings. Once again the immediate surroundings include the skin whose temperature is therefore **decreased / increased**.

• Scan the QR Code below for the answers to this assignment.

http://www.chemist.sg/energy_changes/intro_energy_from_chemicals_ans.pdf