In the main part of my thesis I looked for winning strategy of different types of the game NIM. I focused on my own process which led to discovery of a general formula of concrete type of NIM. After that its validity was proved. The whole process was accompanied by self-reflection. The following aim of thesis was to find out if NIM is an appropriate game for pupils of primary schools. Therefore on the basis of my own experiences I chose one type of NIM and I used it for experiments with pupils (aged 10-11). I observed pairs of pupils looking for winning strategy and I made notes of their reactions. Then deep analysis of one pre-experiment and one experiment followed.