The first part of the thesis presents elementary facts and results of the theory of groups. The second part explains Sylow's subgroups theory containing, among others, formulations and proofs of the three Sylow's theorems which are important tools in analysing the structure of mainly nonabelian groups. The goal of the following part is to describe the structure of all finite groups up to order 15. Basically, there are two possible approaches to the characterization of these groups – one can either focus just on these particular groups or describe groups with order of e.g. prime power and then use the results to solve the task. The author of this thesis chooses reasonable middle ground between overly specific approach and one too complicated. As a result of this choice, the description of all finite abelian groups is included. The theory is illustrated with some demonstrative examples, with emphasis on those outside of „the pure matematics".