Conjugate gradient method is one of the basic iterative methods for solving systems of linear algebraic equations with a symmetric positive definite matrix. We present two different derivations of the method and show some its properties. In situations where the method converges slowly or almost stagnates, techniques that transform the original system are usually used to speed up the convergence. Among them there is a preconditioning, for which we briefly present the basic idea and algorithm of preconditioned conjugate gradients. We then focus in more detail on the so-called deflation. We present the context in which it has been described in the literature, and comment on various approaches to the derivation of the deflated CG algorithm. We explain the principle of deflation and derive thoroughly the algorithm, describing steps that are not explicitly stated or discussed in detail in the literature. On simple numerical experiments we illustrate the effect of the deflation on the convergence rate.