The thesis is focused on the theory behind post-quantum key exchange algorithms CSIDH and SIDH. We assume basic knowledge of elliptic curves although, at the beginning, we briefly present the theory of elliptic curves and isogenies. After that, we build on that theory to understand the endomorphism rings of elliptic curves. We also present the ideal class group action on elliptic curves over the complex numbers and how it relates to elliptic curves over finite fields. At the end, we present the two mentioned algorithms and explain why and how they work with the help of the presented theory and examples. Also, we include a brief security analysis of some aspects of the algorithms. Throughout the thesis we also modify or expand proofs of essential statements and formulate some of our own.