Behaviour of Group III (Al) and IV (Sn) metals on Si(100) surface was studied by Scanning Tunnelling Microscopy in a temperature range from 115 K to 350 K. Evolution of the length of Sn chains at room and elevated temperatures was studied by the method of repeated line scans. Activation energies and the respective frequency prefactors for detachment of different individual atoms from the chains' terminations were obtained by means of statistical processing. Kinetic Monte Carlo simulations were used to obtain activation energies for hops of Sn adatoms on the Si(100) surface at room temperature by fitting experimentally measured growth characteristics of Sn/Si(100). Three basic Al objects observed by Scanning Tunnelling Microscopy at room temperature on Si(100) were identified and thoroughly described. Direct observation of Al adatom hopping on Si(100)-c(4x2) at 115 K was used to evaluate the activation energies for individual hops in directions parallel with Si dimer rows and perpendicular to Si dimer rows. Kinetic Monte Carlo simulations were used to obtain activation energies for hops of Al adatoms on the Si(100) surface at room temperature by fitting experimentally measured growth characteristics of Al/Si(100).