Understanding how the solar corona is heated to high temperatures is a fundamental problem in astrophysics. The strong magnetic fields and intrinsic brightness of active regions make them an ideal place to study the properties of the solar atmosphere and to compare these properties with theories of coronal heating. In this talk we will review how the EIS, XRT, and SOT instruments on Hinode, in conjunction with observations from SDO and IRIS, I have been used to extend our understanding of both the 1 MK loops that are usually found at the periphery of solar active regions and the 4 MK loops that often occupy the active region core. We will also discuss recent results from hydrodynamic and magnetohydrodynamic simulations of these active region structures.