7. Conductivity of electrons in materials
   - Given the conductivity of a material, predict the energy distribution of the electrons.
   - For an unknown material, be able to analyze whether it is a conductor, insulator, or semiconductor, and then predict what electron energy distribution it must have.
   - Describe the energy distribution the electrons need to have in order to produce a desired conductivity of a material.
   - Qualitatively design a semiconductor diode that will only allow current to flow in one direction.