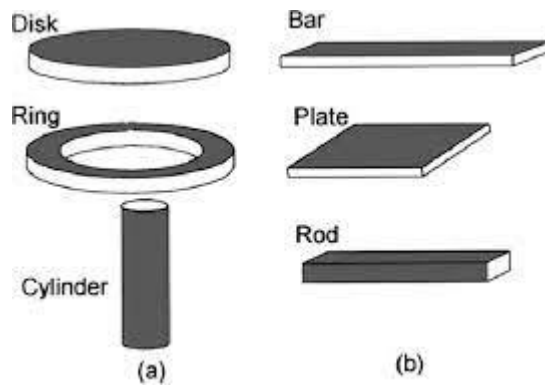


Piezoelectricity

Piezoelectric Effect is the ability of certain materials to generate an electric charge in response to applied mechanical stress. The word Piezoelectric is derived from the Greek piezein, which means to squeeze or press, and piezo, which is Greek for “push”.



The idea example is getting energy from human activity like walking. Where we could put these Piezoelectric sensors in shoes and by the pressure of people they would get energy. But there's a problem which is what will we use these electricity for. So, We may do a later idea like putting these sensors in the walking machine that are in the gymnasium. But How to get the

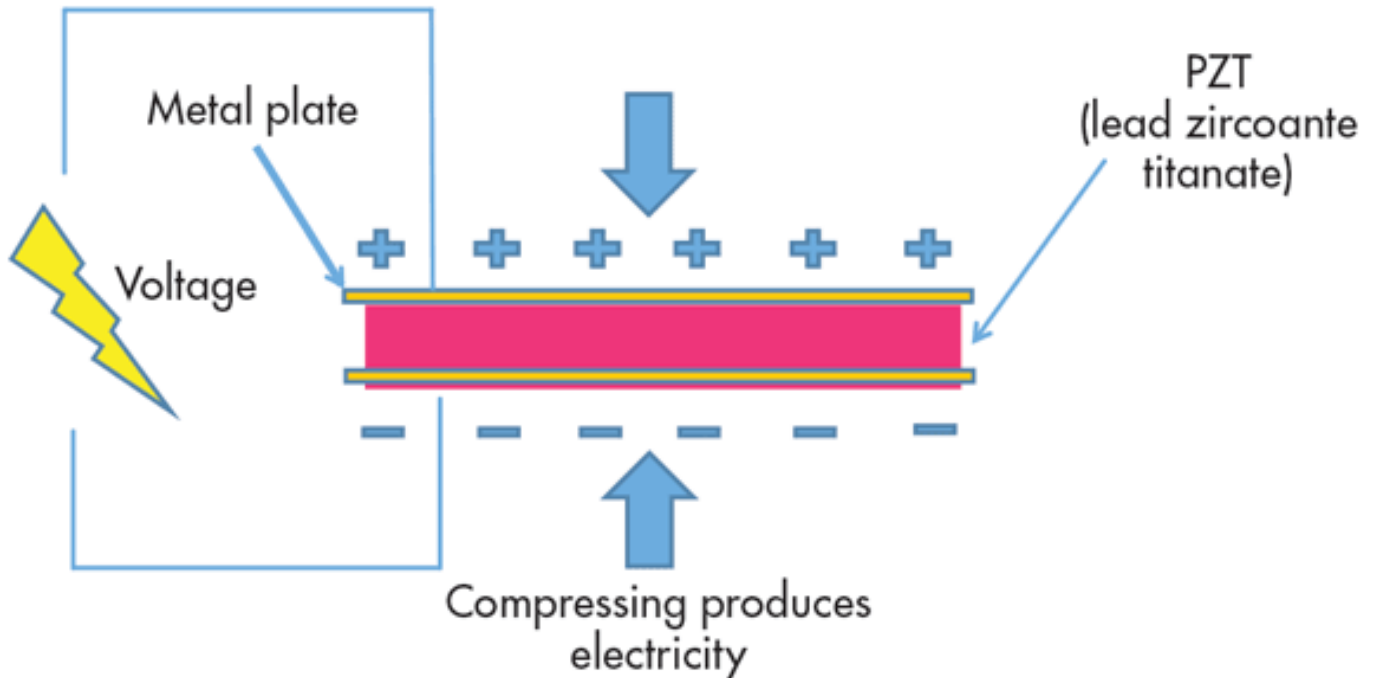
electricity?

GYMS AND WORKPLACES



1. A piezoelectric crystal is placed between two metal plates. At this point the material is in perfect balance and does not conduct an electric current.
2. Mechanical pressure is then applied to the material by the metal plates, which forces the electric charges within the crystal out of balance. Excess negative and positive charges appear on opposite sides of the crystal face.

3. The metal plate collects these charges, which can be used to produce a voltage and send an electrical current through a circuit.



That's it, a simple application of mechanical pressure, the squeezing of a crystal and suddenly you have an electric current. You can also do the opposite, applying an electrical signal to a material as an **inverse piezoelectric effect**. It works like this:

1. In the same situation as the example above, we have a piezoelectric crystal placed between two metal plates. The crystal's structure is in perfect balance.
2. Electrical energy is then applied to the crystal, which shrinks and expands the crystal's structure.
3. As the crystal's structure expands and contracts, it converts the received electrical energy and releases mechanical energy in the form of a sound wave.

