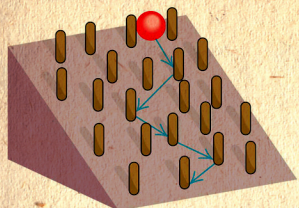




IS FOR RESISTANCE

Resistance is a measurement of an objects resistance to the passage of electrical current through it. The unit of resistance is the ohm.



Physical model of resistance.

Resistance is the electrical analogue of friction. Resistors turn electrical energy into heat.

Depending on the resistivity of a material, i.e. how good of a conductor it is, it may turn more or less electrical energy into heat as a current is passed through it. In the above diagram, the ball is current. The relative amount of pegs represents the resistivity of the material. The slope represents the voltage across the material.

Every material increases its resistivity with temperature. For copper, aluminum, and steel, the difference is negligible-- these materials are referred to as ohmic. For other materials, such as the tungsten used in light bulbs and the nichrome wire used in electric heaters, the resistance is considerable. This is why light bulbs always fail when first turned on-- they have much lower resistance when cold.

Non-conducting materials can suddenly become conductors when a sufficient voltage is applied across them. This is referred to as dielectric breakdown, and is why lightning strikes rather than dissipating electricity constantly.