

What Are Conductors and Insulators?

Matter has many important properties besides density. For example, some materials **conduct** energy very well. These materials allow energy to flow through them easily. However, other materials **insulate** against the passage of energy. They do not readily permit energy to flow. Look carefully at the photographs to learn about materials that conduct or insulate.

Cooking pots and pans are made of metal because metal conducts heat well. However, they should have wooden or ceramic handles. Such handles insulate against heat so you don't get burned when you touch the handles.

Metals, like the copper in the wire, are also good conductors of electricity.

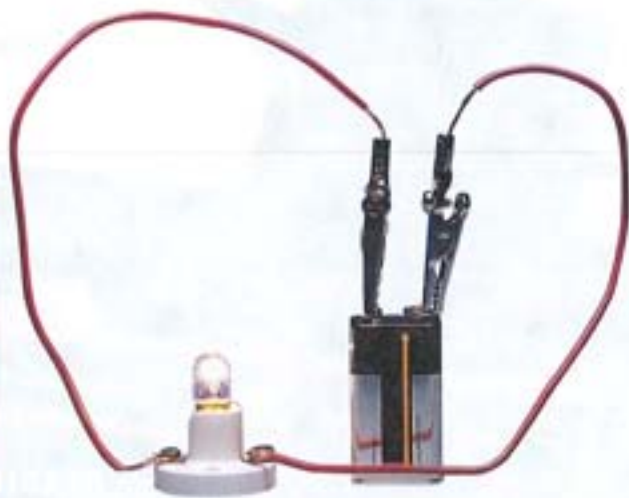
The walls of this room are made of a material that insulates sound. Why might this property be useful?



Which material in this pan is a conductor? Which is an insulator?

The electricity flows from the battery to the light bulb through the wire, producing light and heat. The plastic that coats the wire is an insulator. Anyone who touches the plastic coating will not be shocked, because the electricity cannot pass through it.

Sound booths are made of materials that insulate the room from outside noise. This property is important for musicians who are recording a new CD.



The wire is a good conductor of electricity. The plastic that coats the wire is an insulator. Why must electrical wire be insulated?

► What do *insulate* and *conduct* mean?