Testable Question

How are different materials affected when they’re put into a circuit

Research

In order to conduct electricity it requires the substance to have charged particles that are free to move. Examples include silver, wet wood, and aluminum. Insulators have tightly bound electrons which make them poor electrical conductors. They are often used in electrical safety, preventing the flow of electricity. Examples include rubber, glass and ceramic.

Hypothesis

I am testing three different materials (magnets, wood and copper) to see how well they conduct electricity.

I think the magnet will light up because the magnet has a thick rubber coat so it won't break and has electric charges that carry energy.

I think the wood will not light up because the wood does not have electric charges so it can’t carry electricity like my other materials do.

I think the copper tape will light up because copper has luster. Luster has electric charges so when light hits copper it absorbs the wavelines.

Variables

INDEPENDENT

The type of materials Copper Tape, Magnet Tape, Popsicle Sticks

DEPENDENT

The amount of energy

CONTROLLED

Diodes, Copper Tape, Magnet Tape and Popsicle sticks, Batteries, Set up

Materials

- Copper tape
- Magnets
- Wood
- Scissors
- Hard Work
- Makers
- Paper
- Diodes
- Battery
- Cardstock
- Glue

Procedure

First you get the coloring sheet color it .Second glue the cardstock onto the coloring sheet cut it out .Third use the diode bend the long side up and the other side down .Forth put copper tape and put it over top of the diode on the coloring sheet make on side of the copper tape longer than the other side .Fifth put the battery on the longer side. Finally take a little copper tape and fold it and put it on the shorter side conterded now put it on the battery the diode should light up.

Data

My data is average brightness by material 80 is my average for the copper tape because 13 out of 15 diodes light up. Next is the magnet tape none of the magnet tape light up so my average is zero last but not least are the popsicle sticks none of them light up either so as always if none of them light up its zero.

Tables and Graphs

80 is my average for my copper tape none of the other diodes light up

Conclusion

In the end of this experiment copper tape worked the best it lit up 13 diodes compared to the other wood and magnet tape experiments that did not light up any. My hypothesis was only partially correct reason being the magnets were not stong enough the wood was not damp. If another experiment was performed i would make the wood wet and use a stronger magnet.

Recommendations

To improve the magnet experiment you could use stronger magnets, this might help conduct more electricity.

To improve the wood experiment you could use wet wood. The presence of moisture will create charged ions which would help the wood conduct electricity.

To improve the copper tape experiment you could put copper tape over the ends of the diodes and put two fingers on the battery. Also the experiment would be better if the switch wasn’t long either.