

# April 6, 2016

## insulators and conductors

### *Warm-up*

Name and give an example of each of the three ways objects can be charged using static electricity.

### Insulators Page 280-281

**Electrical Insulator:** a substance in which electrons cannot move freely from one atom to another.

Some elements have a tight hold on their electrons. Therefore, electrons cannot flow freely through them.

This property makes them good insulators.

These materials can protect us from electric shock. Ex rubber, paint or wax.



## Conductors Page 281

**Electrical Conductor:** a substance in which electrons can move freely from one atom to another.

Some elements allow electrons to flow freely through them, making them good conductors. Ex. copper

<b>Good Conductors</b>	<b>Fair Conductors</b>	<b>Good Insulators</b>
silver	human body	fur
copper	salt water	silk
aluminum	water vapour (in air)	wool
gold		rubber
nickel		wood

(All metals are good conductors)

During which season do you think problems with static electricity are worse?



Static Electricity is worse in WINTER!!

Why?

- Cold air is dryer and contains fewer water molecules than it does in other seasons.
- Dry air is an insulator and will not pick up charges from our body as they build up. So any charge that builds up on us during winter tends to stay there and results in more static and shocks.
- Water is a conductor of electricity and when in the air it can take extra charges away from the objects resulting in fewer shocks and less static.

# Complete Questions

pg. 281 #1 (do not need to draw diagram), 4,6

## pg 281 #1,4,6

1. Insulators do not allow electrons to flow easily while conductors allow electrons to flow easily.

4. There is less moisture in the air in the winter so there are fewer water molecules to remove charges from charged surfaces.

These problems could be reduced by increasing the humidity in the air. by using a humidifier for example.

6. Prevent wires from touching one another and to protect people from getting electric shocks from the wiring in the home.