

Grounding

when a charged object is connected to Earth, the charge is shared with the entire Earth, all excess charges are safely removed.

Ex. lightning rods are grounded to the Earth, gas pumps are attached to the ground carefully.

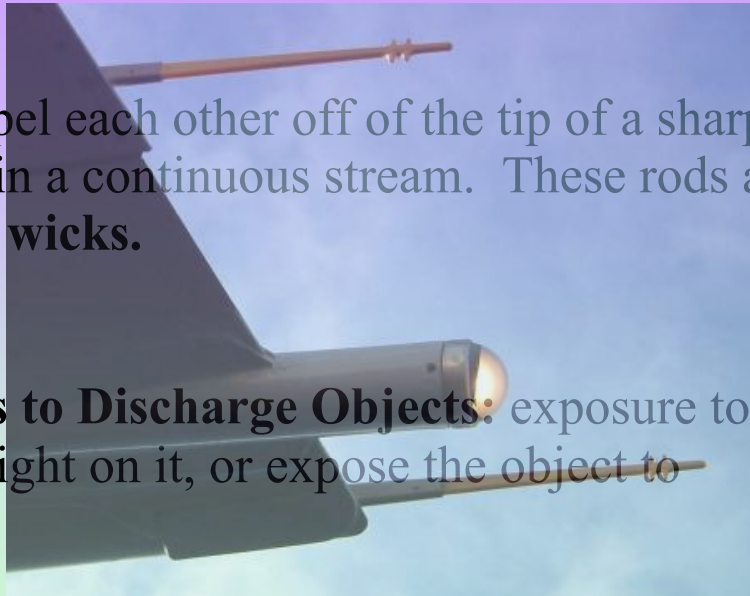
only used when it is easy to attach to the earth sometimes this is not possible. i.e. an airplane

Discharge at a Point

Used on airplanes, car or other objects that cannot be grounded.

Electrons repel each other off of the tip of a sharply pointed rod in a continuous stream. These rods are called **static wicks**.

Other Ways to Discharge Objects: exposure to humid air, shine a light on it, or expose the object to radioactivity



Review Questions For Electricity

True or False

1. The electrostatic series is a list used to determine the kind of electric charge produced on each substance when they are rubbed together.
2. You do not have to wear safety clothing in flour mills and grain elevators.
3. Conductors are substances in which the electrons can not move freely from one atom to another.
4. The law of electric charges states : like charges repel one another and unlike charges attract one another.
5. The term “static” means to move from one spot to another constantly.
6. When a person combs their hair, their hair will become positive and the comb will become negative.
7. An example of an insulator is copper.
8. Charging by induction means charging without touching.
9. A neutral dust particle will attract to a charged tv because like charges repel and unlike charges attract.
10. The repulsion test is the only way to tell the charge of an object.

Review Questions For Electricity

True or False

1. The electrostatic series is a list used to determine the kind of electric charge produced on each substance when they are rubbed together. **True**
2. You do not have to wear safety clothing in flour mills and grain elevators. **False**
3. Conductors are substances in which the electrons can not move freely from one atom to another. **False**
4. The law of electric charges states : like charges repel one another and unlike charges attract one another. **True**
5. The term “static” means to move from one spot to another constantly. **False**
6. When a person combs their hair, their hair will become positive and the comb will become negative. **True**
7. An example of an insulator is copper. **False**
8. Charging by induction means charging without touching. **True**
9. A neutral dust particle will attract to a charged tv because like charges repel and unlike charges attract. **True**
10. The repulsion test is the only way to tell the charge of an object. **False**

Answers to Chapter 9 Review

- 1) The charge remains on the material, therefore the material stay charged. Ex: hair and balloon.
- 2) The study of static charges.
- 3) positive and negative ions.
- 4) like charges repel one another and unlike charges attract one another.
- 5) the electrons move when charges are transferred from one atom to the other.
- 6) c.
- 7) friction, contact, induction.
- 8) When objects are rubbed together which causes the charges t build up.
- 9) hair and balloon, wool sock and silk blouse.
- 10) list to determine the charge on different materials

Answers to Chapter 9 Review

- 11) a. cotton (-) wool (+)
 b. hair (+) plastic comb (-)
 c. silk (+) cotton (-)

12) transferring a charge through touching an object.

13) touching a doorknob with your hand after you have rubbed your feet on carpet.

14) transferring charge without contact.

15) Example a TV screen and dust.

16) substance where electrons can't move freely through a material.

17) Rubber, plastic

18) substance that allows electrons to move freely through a material.

Answers to Chapter 9 Review

19) copper, aluminum.

20) the air is drier, therefore the electrons are not conducted away from an object.

21) Two ways to discharge objects are by grounding or discharging at a point.

Grounding is when there is a wire connected from the object to the earth any charge the object receives gets transferred to the earth.

Discharging at a point is when something like a static wick is used on an airplane to remove the charges from the pointy tip into the air.