



# Applied Physical Science

## Electricity and Magnetism

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### Course Objectives

1. Define electricity and static electricity.
2. List the different ways that electricity is produced.
3. Distinguish between AC and DC currents.
4. Identify parts in a basic current.
5. Calculate current, voltage or resistance using Ohm's Law.
6. Describe the purpose of transformers, fuses, circuit breakers and solenoids in a circuit.
7. Define magnetic field.



### Key Terms (Define the following)

electricity - \_\_\_\_\_  
\_\_\_\_\_

static electricity - \_\_\_\_\_  
\_\_\_\_\_

direct current - \_\_\_\_\_  
\_\_\_\_\_

alternating current - \_\_\_\_\_  
\_\_\_\_\_

current - \_\_\_\_\_  
\_\_\_\_\_

voltage - \_\_\_\_\_  
\_\_\_\_\_

resistance - \_\_\_\_\_  
\_\_\_\_\_

fuse - \_\_\_\_\_  
\_\_\_\_\_

circuit breaker - \_\_\_\_\_  
\_\_\_\_\_

magnetic field - \_\_\_\_\_  
\_\_\_\_\_

solenoid - \_\_\_\_\_  
\_\_\_\_\_



## Principles

### Ohm's Law

**Voltage** = current x resistance

$$V = IR$$

#### Effects of Current (DC) on the Body

Current (amps)	Effects
0.001	Can be felt
0.005	Painful
0.015	Loss of muscle control
0.070	Unable to let go of wire
0.090	Severe pain, difficulty breathing, probably fatal if lasting for more than 1 second
0.100 and up	Death



## Questions

1. Give one example of a good electrical conductor. \_\_\_\_\_
2. Give one example of a good electrical insulator. \_\_\_\_\_
3. List three ways that the current in a circuit can be interrupted.

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