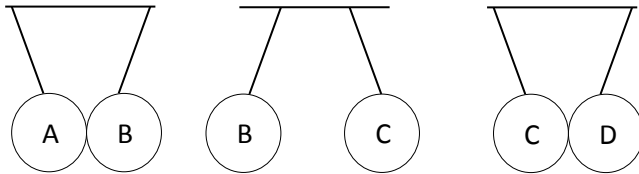


Chapter 5 Questions

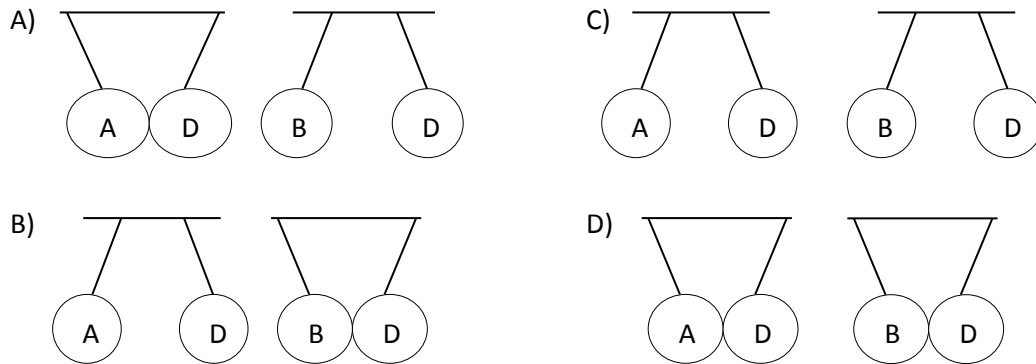
Name: _____

Electrical Charges

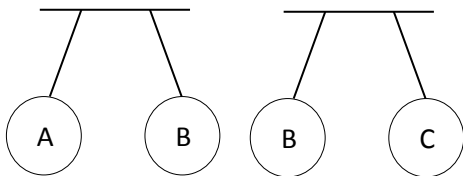
1. Opposite charges *attract/repel* each other. (circle one)
2. Like charges *attract/repel* each other. (circle one)
3. The following experiment is set up using charged spheres.



Spheres A and D are then set up side by side, as well as spheres B & D. Which diagram below correctly shows what would happen?



4. If A is positively charged, what is the charge of C? _____



5. Based on the electrostatic series, (found on the next page) if silk is rubbed on a glass rod - which one is gaining electrons?
6. What would happen if you used a cotton cloth to wipe your glass window clean?
 - A) The glass window would become negatively charged
 - B) The cotton cloth would become negatively charged
 - C) The cotton cloth would become positively charged
 - D) The glass window & cotton cloth would stay neutrally charged

| Electrostatic Series | |
|---------------------------|------------------------|
| TENDENCY | SUBSTANCE |
| Acquire a Negative Charge | Rubber |
| | Ebonite |
| | Polyethylene (Plastic) |
| | Cotton |
| | Silk |
| | Wool |
| | Glass |
| | Acetate |
| Acquire a Positive Charge | Fur |

Ohm's Law, Electrical Power & Energy Consumed Questions

1. What units are used for the following variables?

I – Current Intensity _____

V – Potential Difference _____

R – Resistance _____

P – Electrical Power _____ or _____

E – Electrical Energy _____ or _____ or _____

T – time _____ (when E is _____) or _____ (when E is in _____)

2. A 6kW appliance is turned on for 20 minutes, how much energy (in watt-hour) did it use?
3. A circuit consists of a 21 V battery connected across a single resistor. If the current in the circuit is 3 A, calculate the size of the resistor (calculate the resistance).
4. A 20-volt relay has a coil resistance of 200 ohms. How much current does it draw?

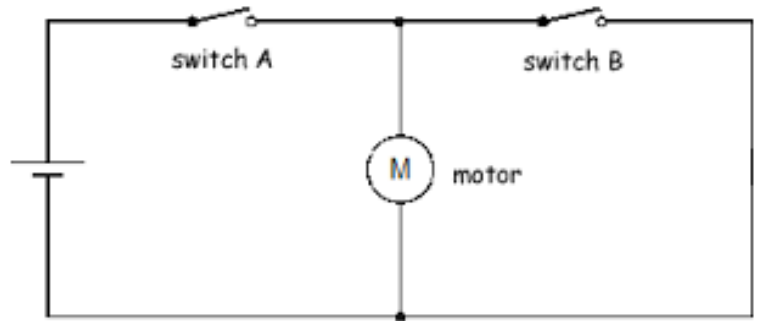
5. A 500W appliance is turned on for 180 minutes. How much energy in watt-hour was used by the appliance?
6. A transformer is connected to 120 volts. Find the current if the resistance is 480-ohms
7. The price of electricity in Quebec is approximately \$0.07 per kW·h. A student turns on a 60 watt light bulb for 7 hours every day for 30 days. What will be the monthly electric bill for the light bulb?

Circuits

1. What are the three elements a circuit needs for it to work?
2. Draw a series circuit with two batteries and three light bulbs.
3. Draw a parallel circuit with one battery and three light bulbs.
4. Draw a circuit that includes two batteries, one light bulb, an ammeter and a voltmeter finding the potential difference of the light bulb.
5. Which way do electrons travel in a circuit?
6. Which way is conventional current direction?

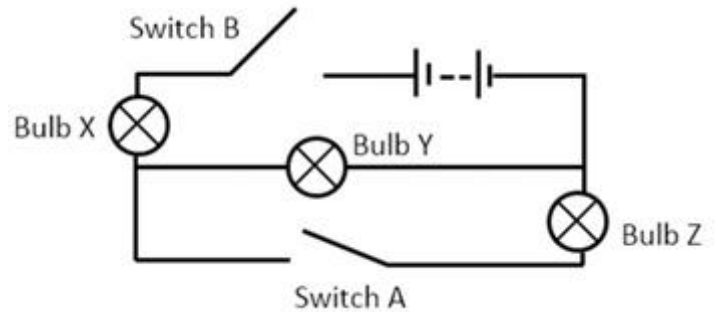
7. State whether the motor will work in the circuit below in the following situations:

- a) Switch A is on, Switch B is off, the motor is _____.
- b) Switch A is on, Switch B is on, the motor is _____.
- c) Switch A is off, Switch B is off, the motor is _____.
- d) Switch A is off, Switch B is on, the motor is _____.



8. Which bulbs will turn on if switch A is closed and switch B is open?

9. Which bulbs will turn on if switch A is open and switch B is closed?

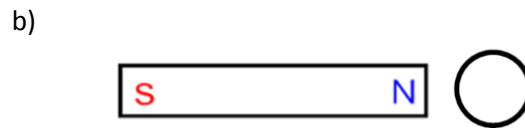
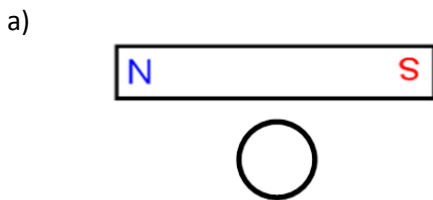


Magnets

- 1. Like poles *attract/repel* each other & Opposite poles *attract/repel* each other.
- 2. Each magnet has ___ poles, a _____ pole and a _____ pole.
- 3. Draw the magnetic field lines of the following:



4. Where would the compass' be pointing if placed in the following locations near the magnets?



5. Which way is the current flowing on the following?

