Handout given in class

# It's all about $e^-$

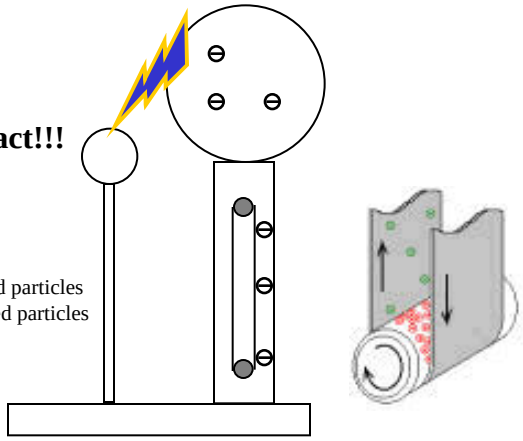
(if I were an electron, I would be….)

**1. light weight particle; 1/2000th an atomic mass unit (amu).**
**2. (-) negatively charged particle.**
**3. loosely bound; American Heritage Dictionary defines loose as**
- **not fastened; unbound.**

**4. attracted to (+) positively charged particles; opposites attract.**
**5. repelled by other negatively charged particles; like charges repel.**
**6. dynamic <u>not</u> static; I'd would move about or jump around.**
**7. a traveler and would love to travel but never far from home.**
**8. at home within an electron shell shown by Bohr's model.**
**9. easily excitable.**

# the Vandegraph generator

**Electrons are**
**Not STACTIC,**
**They JUMP**
**Opposite charges attract!!!**



2. (-) negatively charged particle
3. loosely bound
4. attracted to (+) positively charged particles
5. repelled by other negative charged particles
6. dynamic <u>not</u> static


**Fill'er up &**
**Check the oil...**

**When filling your containers made frommaterials that are Nonconductors,**
- **plastic,**
- **rubber or**
- **glass**

**What should you ALWAYs do ???**


**Be grounded**
**in your knowledge of chemistry**

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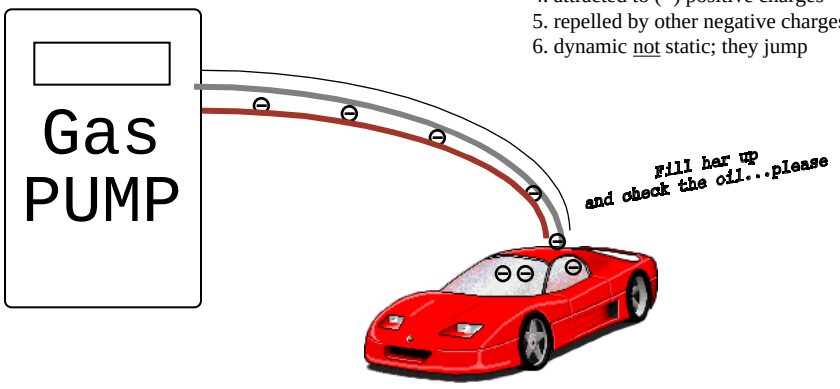
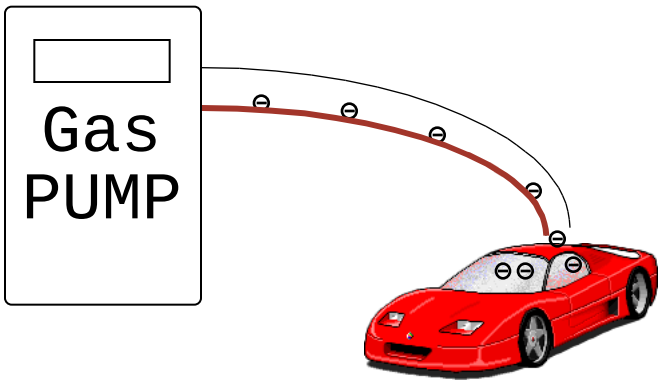
**As gasoline flows through the plastic hose, a dangerous and potentially lethal static charge is produced.**

**A metal ground wire place between the metal chassy of the car and the metal gas pump to neutralize charge build up.**

2. (-) negatively charged
3. loosely bound;
4. attracted to (+) positive charges
5. repelled by other negative charges
6. dynamic not static; they jump





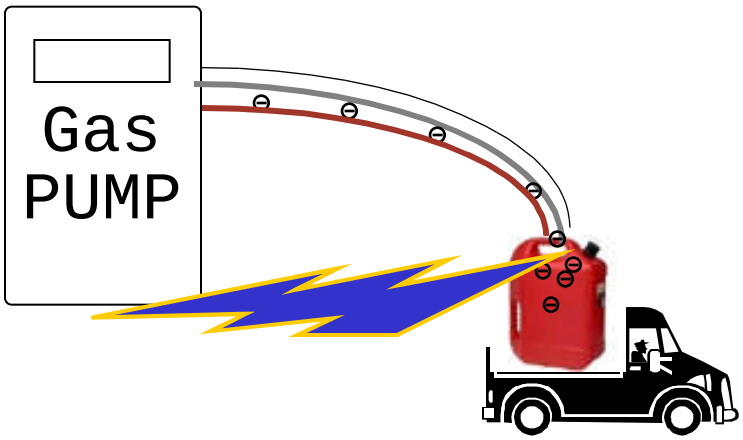

- <u>metals are conductors</u>
  allowing electrons to travel

- <u>plastics, glass, rubber are insulators</u> &
  prevent (insulate) electrons from traveling

**Plastic, rubber and glass are nonconductor insulators of charge**

**Plastic, rubber and glass containers are not easily grounded**

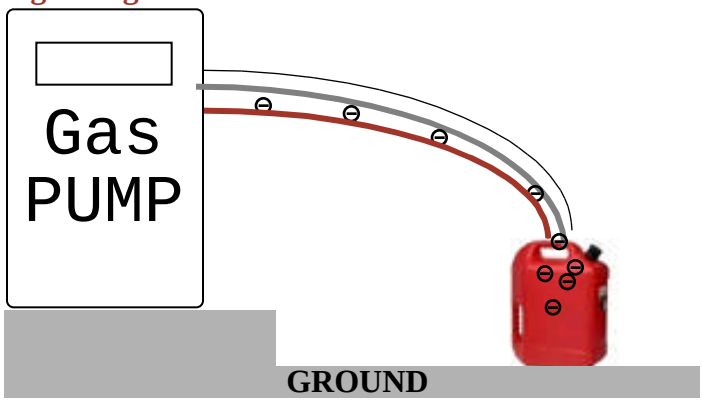
**A plastic container not properly grounded can be lethal.**




**A plastic container that is not properly grounded is lethal.**

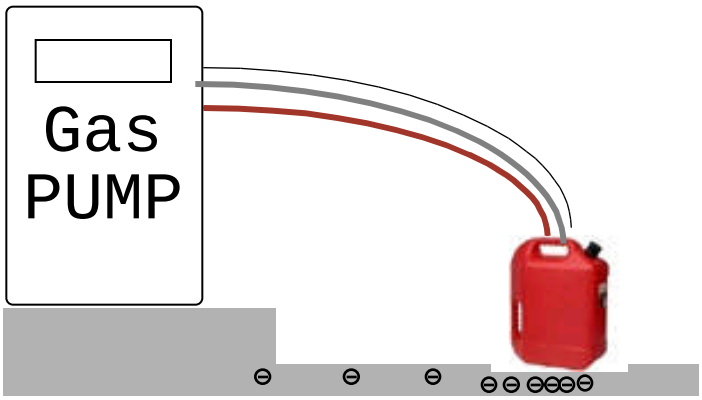
**Plastic and glass containers are nonconducting insulators of charge and are not easily grounded**

**Place a plastic, glass, rubber container on the ground when filling with gasoline or other solvents.**



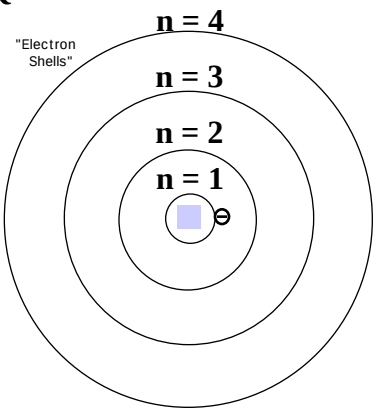
**Place a plastic, glass, rubber container on the ground when filling with gasoline or other solvents.**

**Electrons seek ground**




**Electrons are at home within an electron shell shown by Bohr's model**

1. **At the center of the home is a dense positively charged nucleus.**
2. **About the positively charged nucleus are electron shells.**
3. **Electron shells are represented by " $n^{th}$ " levels (quantum levels)**
4. **Quantum level means "discrete energy level."**

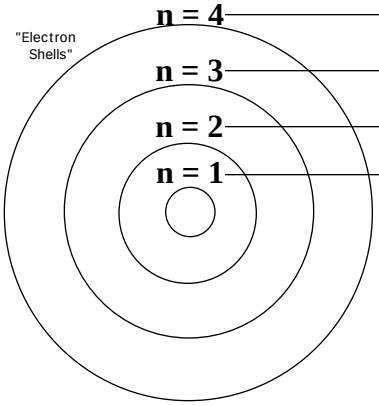



A solar system type model

**Electrons have a home in a given shell**

**Bohr's Model for atoms**

**The maximum number of Electrons per shell is given by $2(n)^2$**




$2(4)^2 = 32$

$2(3)^2 = 18$

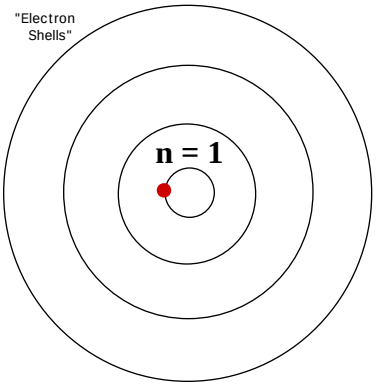
$2(2)^2 = 8$

$2(1)^2 = 2$

Niels Bohr
Culver Pictures, Inc.

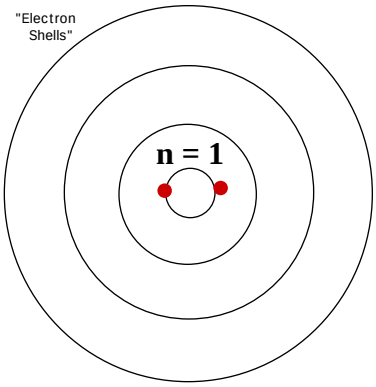
**Where is hydrogen's one electron located??????**

**Bohr's Model for a hydrogen atom, $_1H$, atomic number 1, one electron**



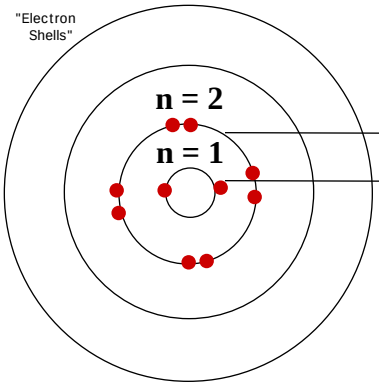
**Where are helium's two electrons located??????**

**Bohr's Model for a helium atom, $_{2}$He,**
**atomic number 2, two electrons**




**Where are neon's ten electrons located??????**

**Bohr's Model for a neon atom, $_{10}$Ne,**
**atomic number 10, ten electrons**



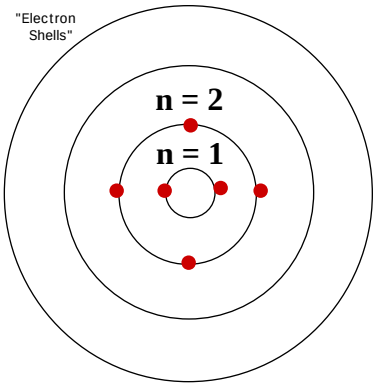

**The maximun number of Electrons per shell is given by $2(n)^2$**

**$2(2)^2 = 8$**

**$2(1)^2 = 2$**

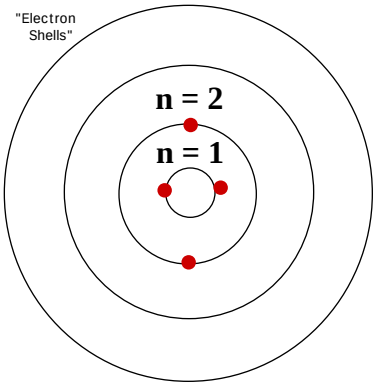
**Where are the six electrons for carbon located??????**

**Bohr's Model for a carbon atom**



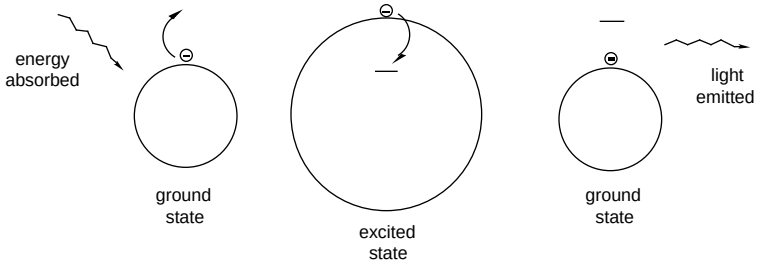

**Where are the four electrons for beryllium located??????**

**Bohr's Model for a beryllium , Be, atom**



## The glowing pickle demonstration

### Electrons are easily excitable




Atomic Emission Spectra and Flame Tests
Dr.Gergens - SD Mesa College

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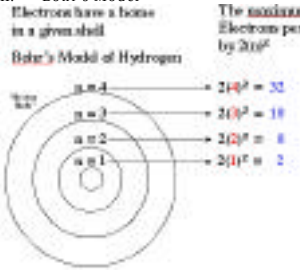
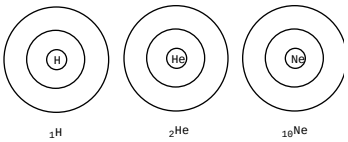
II. Bohr's Model




ue Electron Configuration




III. Absorption versus Emission

A. Ground State versus Excited State