

# Ionic Bonding

Ch 8 and 9

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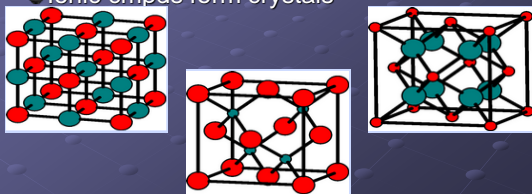
## Objectives

- Understand properties of ionic compounds
- Use Lewis dot structures to show give/take of electrons

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## Ionic Bonding

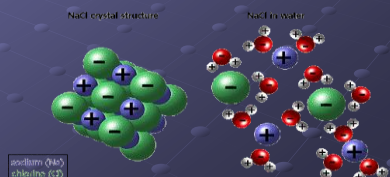
- Involve + and – ions (metals and nonmetals)
- Formula unit is the ionic word for molecule
- Ionic cmpds form crystals



[http://www.everyscience.com/Chemistry/Inorganic/Ionic\\_Solids/b.1297.php](http://www.everyscience.com/Chemistry/Inorganic/Ionic_Solids/b.1297.php)<sup>3</sup>

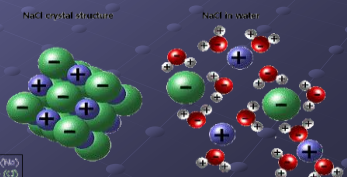
## Properties of Ionic Cmpds

- Conduct electricity when dissolved or melted
- Electricity flows because charges move
- New term—dissociate

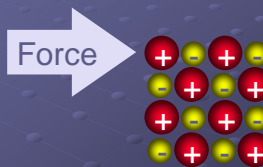


## Properties of Ionic Cmpds

- High MP and BP
- Due to strength of attraction

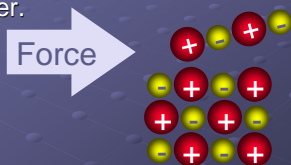


## Ionic solids are brittle

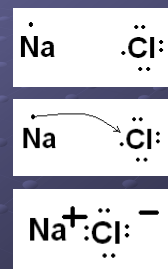


## Ionic solids are brittle

- Strong Repulsion breaks a crystal apart, due to similar ions being next to each other.



- Use Lewis structures to and arrow show the transfer of electrons when sodium and chlorine bond.



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## Ionic Bonding

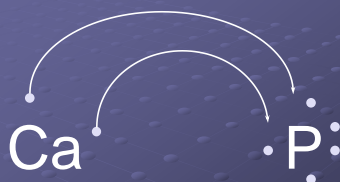
Lets do an example by combining calcium and phosphorus:



- All the electrons must be accounted for, and **each** atom will have a noble gas configuration (which is stable).

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## Ionic Bonding



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## Ionic Bonding



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## Ionic Bonding



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## Ionic Bonding



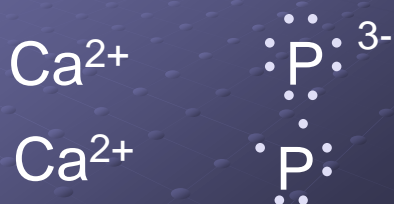
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## Ionic Bonding



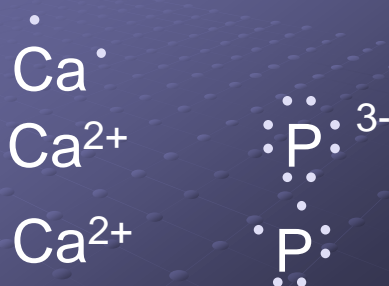
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## Ionic Bonding



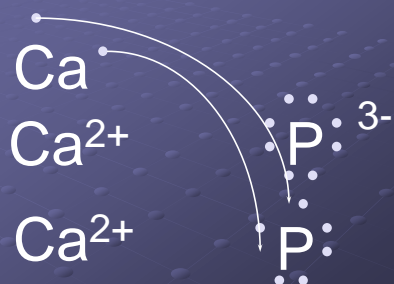
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## Ionic Bonding



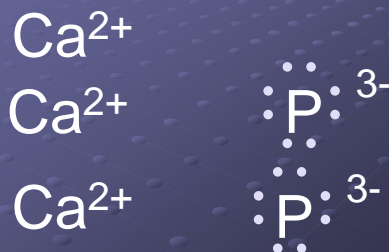
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## Ionic Bonding



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## Ionic Bonding



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## Ionic Bonding



This is a **chemical formula**, which shows the kinds and numbers of atoms in the smallest representative particle of the substance.

For an ionic compound, the smallest representative particle is called a:

Formula Unit

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- Use Lewis structures to show the transfer of electrons when magnesium and sulfur bond.
- Write the formula for this compound

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- Use Lewis structures to show the transfer of electrons when aluminum and chlorine bond.
- Write the formula for this compound

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