



5 Chemical Bonding

1. Why do elements react?

All atoms want to have

2. Hydrogen and helium have just one shell. It contains up to electrons.

The outermost shell of all the other elements contains up to electrons.

3. Metals have electrons in their outermost shell.

Name some typical metals:

4. Non-metals have electrons in their outermost shell.

Name some typical non-metals:

5. Metals want to of their outermost electrons.

Non-metals want to

6. There are two types of chemical bonding:

1. 2.

7. **Ionic bonding:** One atom and another atom electrons.

8. Unlike charges (positive and negative charges) each other.

Like charges (positive and positive charges or negative and negative charges) each other.

9. **Sodium chloride** (NaCl) is an example of ionic bonding.

Which atom is losing an electron?

Which atom gains an electron?

	number of protons	number of electrons
Na sodium		
Na ⁺ sodium ion		
Cl chlorine		
Cl ⁻ chlorine ion		

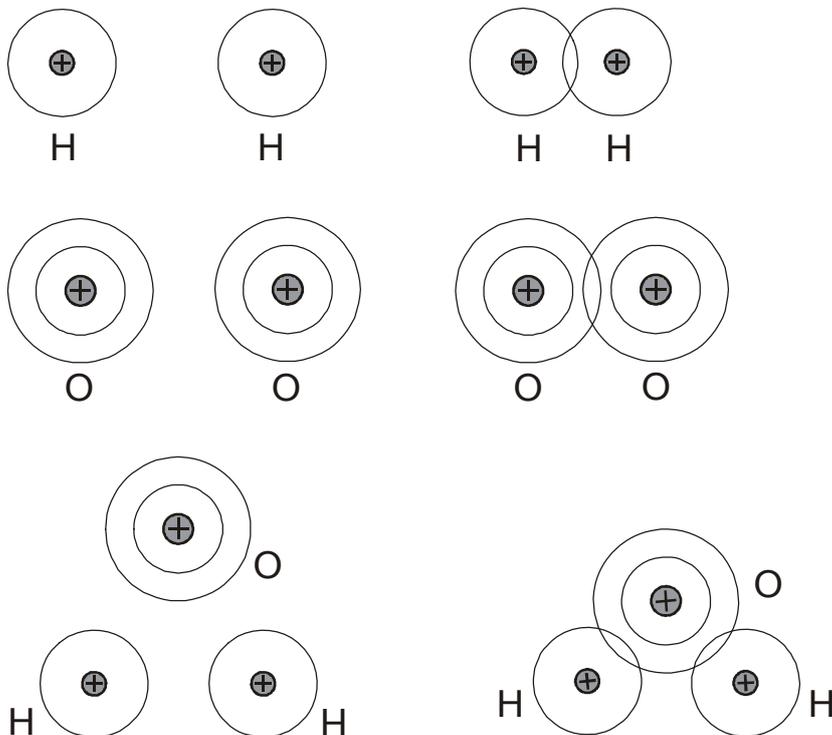
NaCl is a single molecule. Its structure is that of a

10. **Covalent bonding:** Two atoms electrons.

11. With covalent bonding you get

12. Give some examples of molecules with covalent bonding

13. Put in the missing electrons.



14. What is the reason that water is a fluid and oxygen is gaseous at normal temperature?

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15. Tick what is correct:

- covalent compounds are soluble in water
- covalent compounds are usually liquids or gases
- covalent compounds are good conductors of electricity
- ionic compounds are usually solids
- ionic compounds conduct electricity when dissolved in water
- ionic compounds have low melting and boiling temperatures