



Organic Chemistry

rick y rick

Part 1

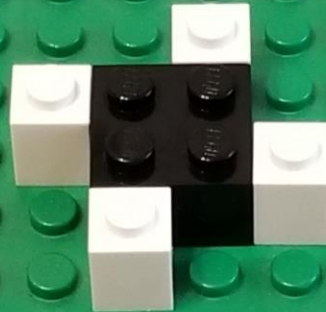
Forthcoming book
Organic Chemistry Brick by Brick:
Using LEGO® to Teach Structure and Reactivity
(ISBN: 978-1912636020)

www.ChemistryBrickByBrick.com/LegoChemistryPart1.pdf

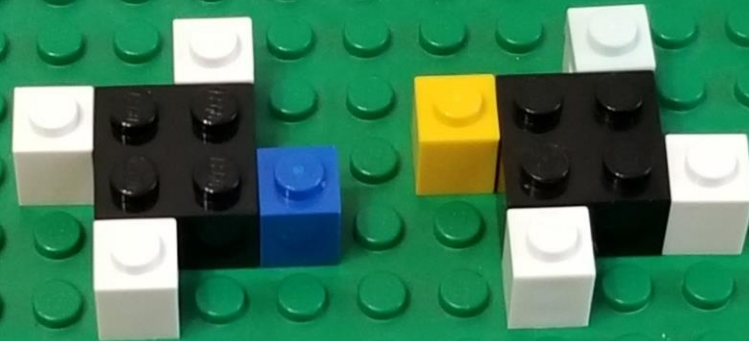
A carbon atom C.



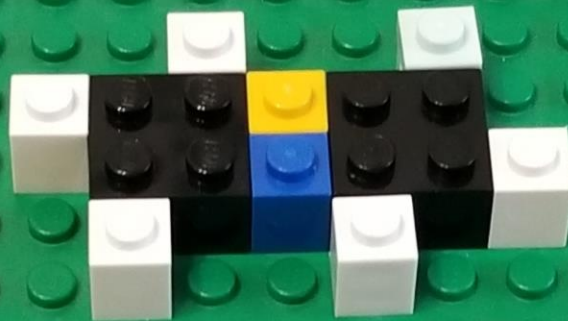
A carbon atom **C** has 4 valence electrons.



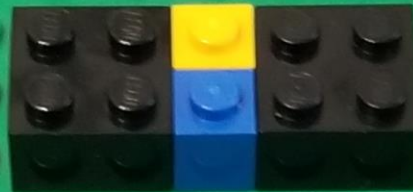
Valence electrons from carbon atoms can combine and ...



... form covalent (molecular) bonds C—C or C_2 .



When discussing some specific bond, we may omit the rest of electrons, other bonds, and even ...

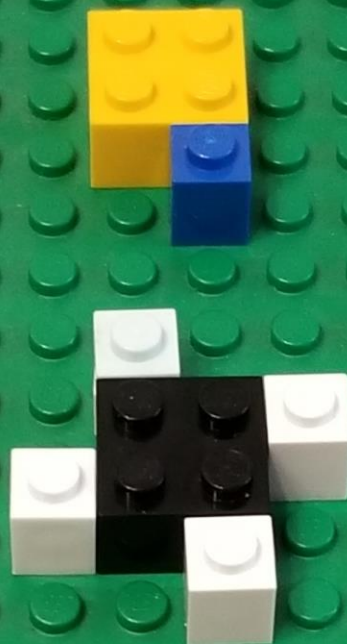


... omit bond electrons for greater simplicity.



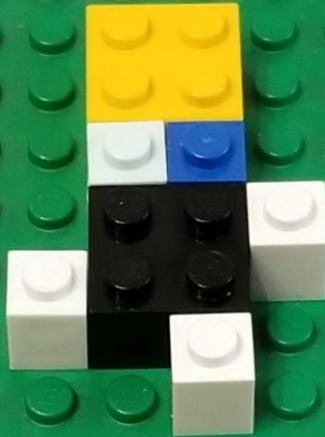


A hydrogen atom **H** with one valence electron.

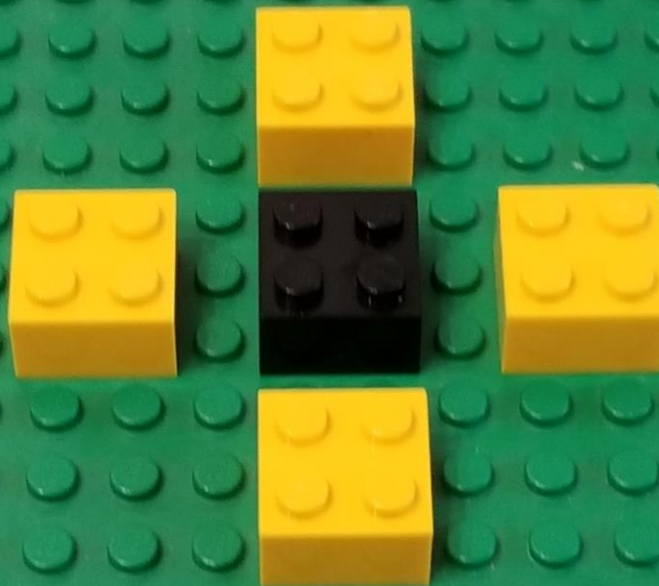


Free valence electrons from carbon **C** and hydrogen **H** atoms can combine and ...

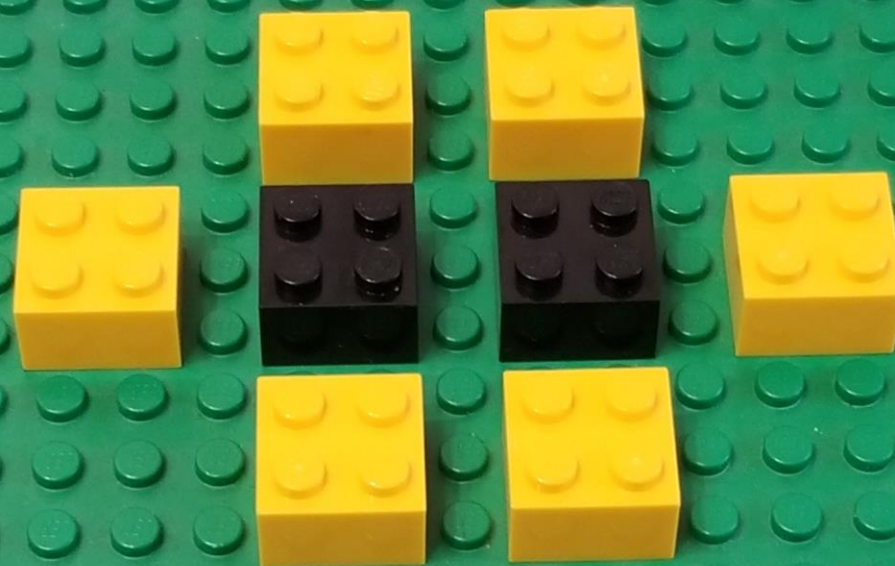
... form covalent (molecular) bonds **C—H** or **CH**.



A carbon atom **C** and 4 hydrogen atoms **H** with 4 covalent bonds form a methane molecule **CH₄**.



Please note the **octet** rule: a carbon atom is surrounded by 8 electrons (4 bonds).



If we replace one hydrogen atom **H** in a methane molecule **CH₄** with a methyl group, **CH₃** (a carbon atom which has bonds to 3 hydrogen atoms only), we get the next compound from the homologous series of alkanes: ethane, **C₂H₆**. We see that each carbon atom is still surrounded by an octet of electrons and has 4 covalent bonds.



Continued with
Part 2