

Carboxylic  
acid

## Rules for writing line structures

- Atom labels for carbons and atom labels for hydrogens attached to carbons are omitted.
- When reading a line structure, carbon is assumed to be tetravalent<sup>\*</sup>, meaning it has a total of four bonds. If fewer than four bonds are explicitly shown, the "missing" bonds are assumed to be towards hydrogens.

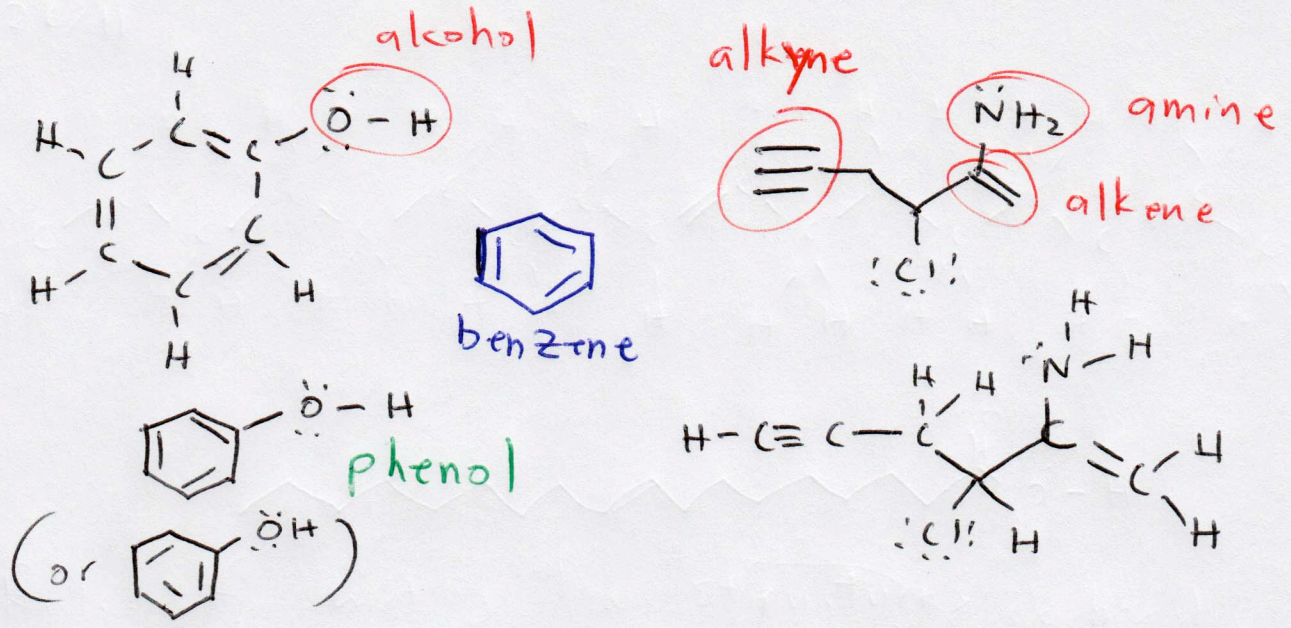
<sup>\*</sup> unless otherwise notated.

hydrocarbon - a compound that contains only carbon and hydrogen.

heteroatoms - "different" atoms - atoms other than carbon or hydrogen (such as O, N, P, S, Cl)

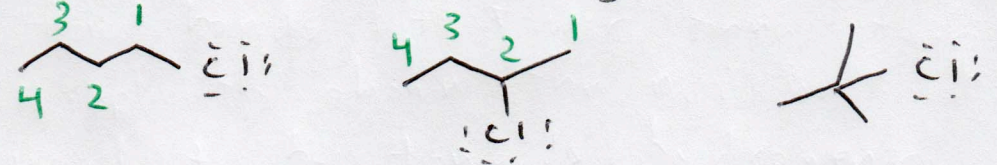
- In line structures, heteroatoms and hydrogens attached to heteroatoms are always explicitly shown.
- Lone electrons and charges should always be explicitly shown.





functional group - a characteristic pattern of atoms that has predictable reactivity regardless of the molecule it is found on.

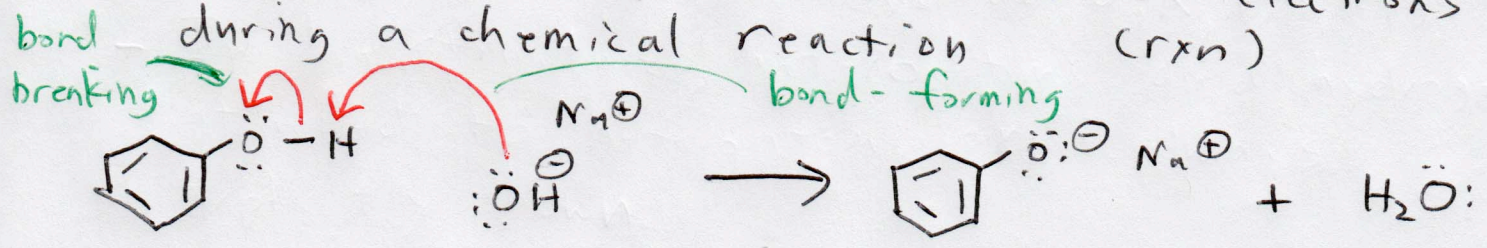
Nomenclature - the naming of molecules



1-chlorobutane 2-chlorobutane

substituent - a group of atoms that takes the place of hydrogen on a larger molecule

Mechanism - the step-by-step flow of electrons during a chemical reaction (rxn)



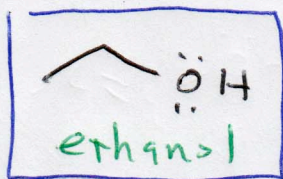
where e<sup>-</sup> come from

where e<sup>-</sup> go to

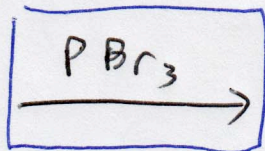
pair of e<sup>-</sup> involved

single e<sup>-</sup> involved

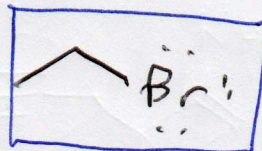




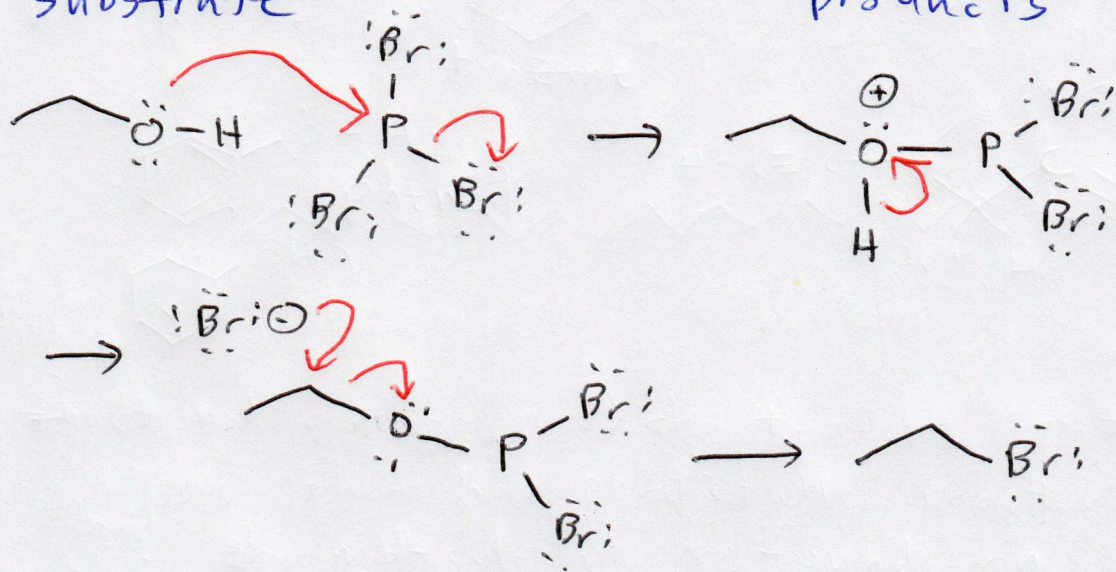
substrate



reagents



products



- Mechanism arrows always show where e<sup>-</sup> move, not how atoms move,