

10

**** Know first and second rows periodic table

Element symbols, Atomic number, Number of protons and neutrons,
Atomic weight – (integral values – e.g. O = 16, N=14 etc)

Know nomenclature: names of first 20 alkanes, all functional groups

Know properties & reactions of alkanes, alkenes, alkynes, alkyl halides,
substitution & elimination reactions

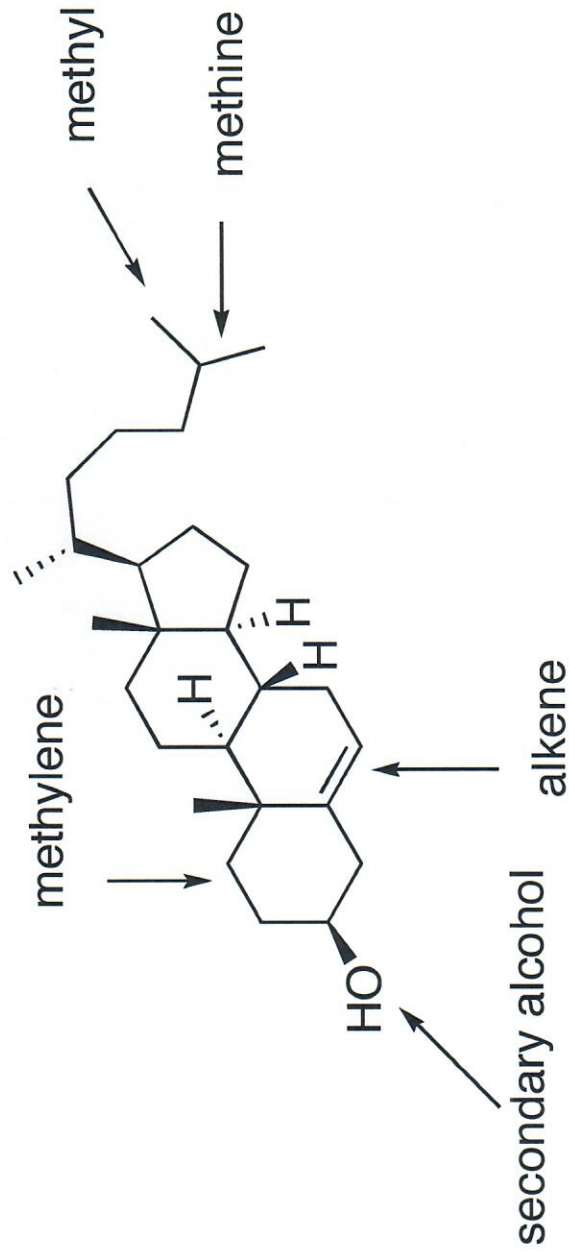
stereochemistry, stereogenic centre (how to determine R and S), enantiomers
and diastereomers, conformations of cycloalkanes

Example: **Cholesterol**: essential in every mammalian cell membrane:

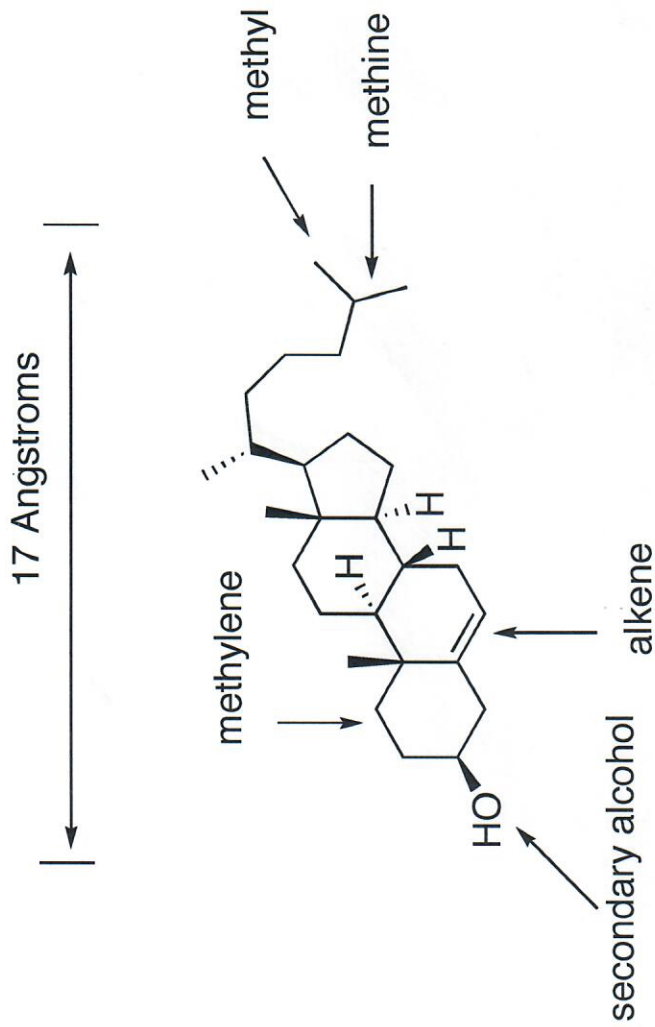
be able to identify **methylys, methylenes, methines, functional groups**
primary, secondary, tertiary, quaternary carbons

Be able to draw full structure showing all atoms (carbons and hydrogens)

17 Angstroms 1 Angstrom = 10^{-8} cm



Cholesterol



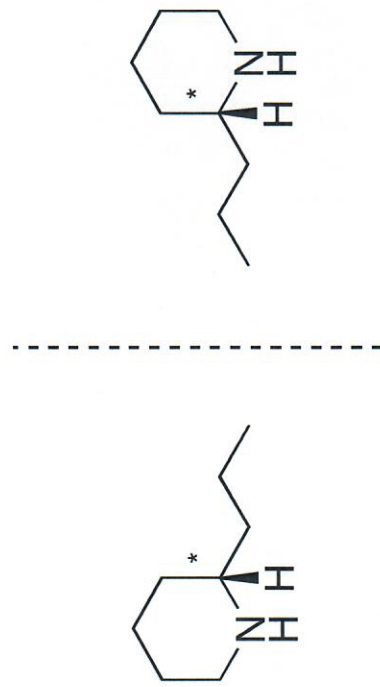
Cholesterol

Cholesterol has 8 stereogenic centers – be able to determine R and S configuration

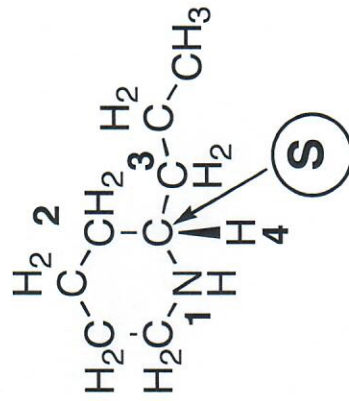
$256 = (2^8)$ stereoisomers: 1 is cholesterol, 1 is the enantiomer of cholesterol, 254 are diastereomers of cholesterol

Determine R and S configuration

Example:



Enantiomers



R and S: priority is determined by atomic number, counterclockwise (with the last priority pointing to the back) is S, clockwise is R