

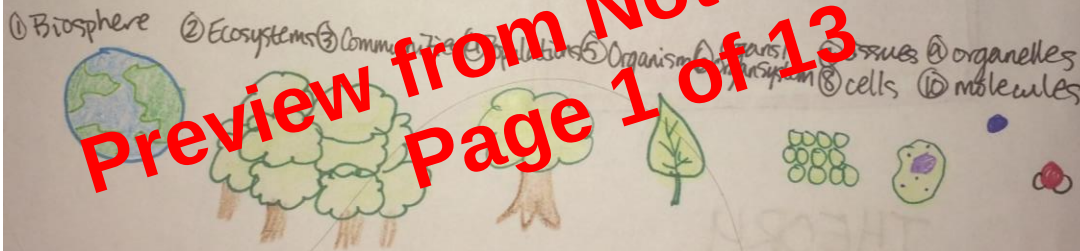
evolution, the themes of biology, and scientific inquiry

properties of life

- order
- evolutionary adaptation
- regulation
- reproduction
- response to environment
- growth & development
- energy processing

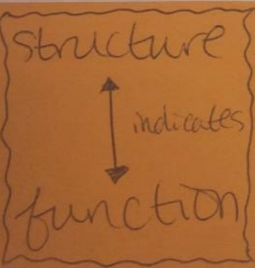
themes in biology

- organization
- information
- energy & matter
- interactions
- evolution



reductionism: zooming in to smaller components

emergent properties: properties that arise due to arrangement & interactions
ex: trees make up population; set of genes expressed



DNA (deoxyribonucleic acid)
is common genetic language

energy is neither created nor destroyed

energy flows through an ecosystem
chemicals are recycled within an ecosystem

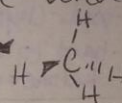
carbon and the molecular diversity of life

organic =
contains
carbon

C can form **4** covalent bonds

forms tetrahedral with 4 single bonds

can't rotate around
double bonds



hydrocarbons:
contain only
C and H

molecular diversity

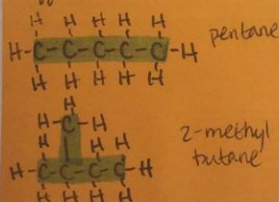
- 1 Carbon Chain Length
- 2 Carbon Chain Branching
- 3 Functional Group Position
- 4 Rings

Preview from Notesale.co.uk
Page 7 of 13

isomer: same atoms, different structure

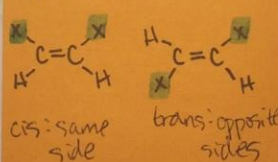
structural isomers

different covalent partners



cis-trans isomers

different spatial arrangement



enantiomers

mirror images

