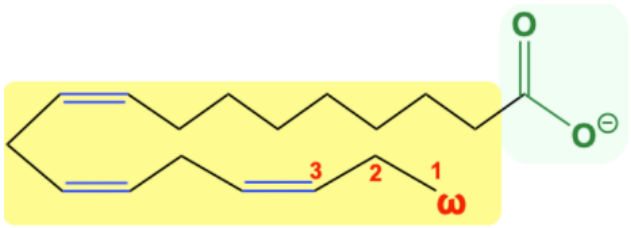
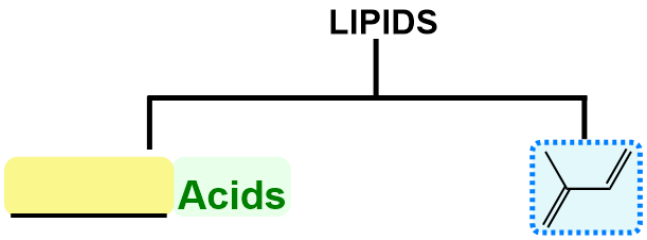
CONCEPT: OMEGA-3 FATTY ACIDS

Omega Fatty Acids

●*Omega* (_____)-*Fatty Acids*: *unsaturated* fatty acids classified by first double bond, numbering from the _____ *carbon*.

□ Omega naming system is used to highlight biologically relevant features & differences.





Omega-3 Fatty Acids

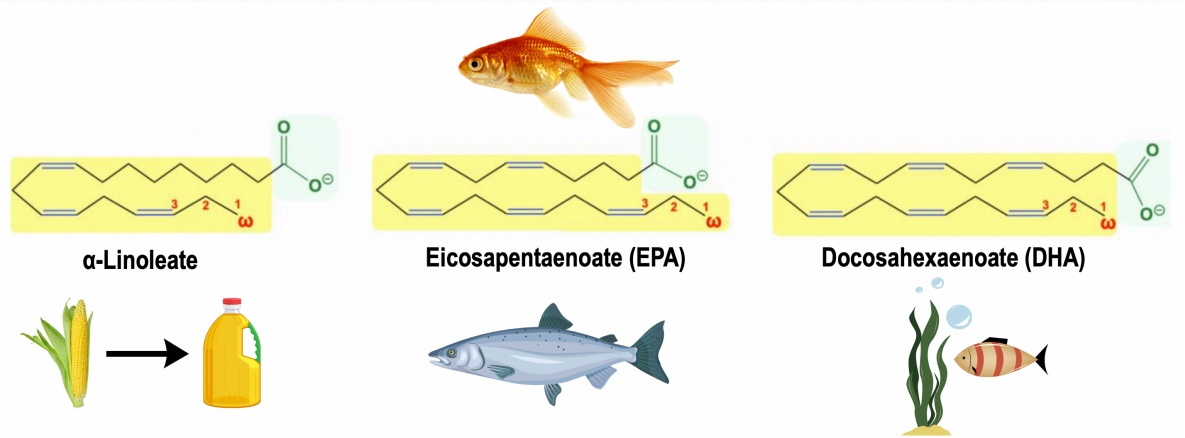
●ω-_____-*Fatty Acids*: fatty acids with a *double bond* located at the _____rd carbon, counting from the ω *carbon*.

□ _____ in human *diet* for normal growth.

□ Linked to _____ *risk* of cardiovascular disease, heart attacks & blood clots.

●ω-3-fatty-acids are *common* in vegetable oils, cold-water _____ (like salmon), & marine algae.

EXAMPLE: ω-3-Fatty-Acids: α-Linolenate, Eicosapentaenoate (EPA), & Docosahexaenoate (DHA).



●ω-_____-*Fatty Acids*: fatty acids with a *double bond* located at the _____th carbon, counting from the ω *carbon*.

PRACTICE: Select all that apply. What do the terms omega-3 (ω-3) and omega-6 (ω-6) indicate about their structures?

a) In ω-6 fatty acids, the carbon backbone is six carbons in length.
b) In ω-6 fatty acids, the double bond nearest the ω methyl group is six carbons along the chain.
c) In ω-3 fatty acids, the double bond nearest the α carbon is three carbons along the chain.
d) In ω-3 fatty acids, the carbon backbone is three carbons in length.

CONCEPT: OMEGA-3 FATTY ACIDS

PRACTICE: Assuming the standard shorthand naming system is used, which of the following is an omega-3 fatty acid?

a) $20{:}1\Delta^{14}$. b) $18{:}3\Delta^{9,12,15}$. c) $20{:}1\Delta^{3,12}$. d) $18{:}2\Delta^{9,12}$.

PRACTICE: Draw the structure of docosahexaenoic acid ($22{:}6\Delta^{4,7,10,13,16,19}$) and indicate what type of omega fatty acid it is.

a) Omega-3 fatty acid.
b) Omega-6 fatty acid.
c) Omega-9 fatty acid.
d) Omega-4 fatty acid.

PRACTICE: Which of the structures below is an example of an omega-3 polyunsaturated fatty acid?

a) A. b) B. c) C. d) D.