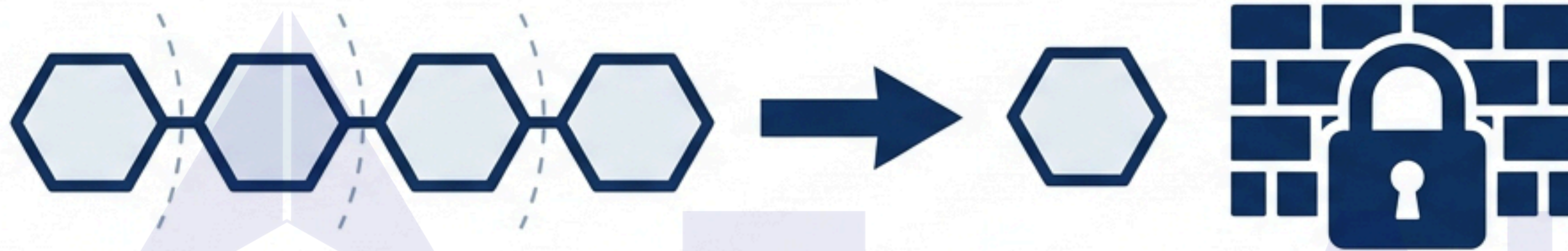


10.1.2

Monosaccharides

Deconstructing the fundamental
units of carbohydrates.

About 20 known to occur in nature.



**Cannot be
hydrolysed further.**

The Definition

A carbohydrate that cannot be hydrolysed further to give a simpler unit.

The Chemical Identity

Must be a Polyhydroxy Aldehyde or Ketone.

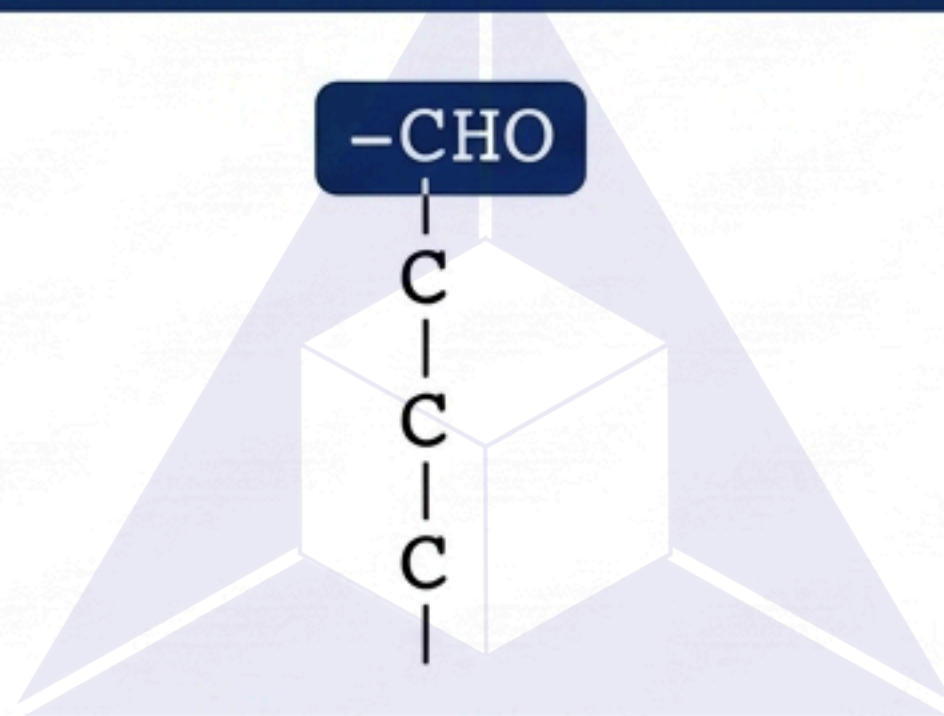
[Glucose]

[Fructose]

[Ribose]

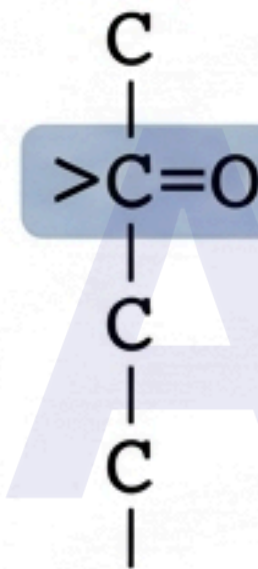
Functional Divergence: Aldose vs. Ketose

[ALDOSE]



Contains an **aldehyde** group. The carbonyl group is strictly terminal (at the end of the carbon chain).

[KETOSE]



Contains a **keto group**. The carbonyl group is positioned internally within the carbon chain.

All monosaccharides, whether aldose or ketose, act as reducing sugars.



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



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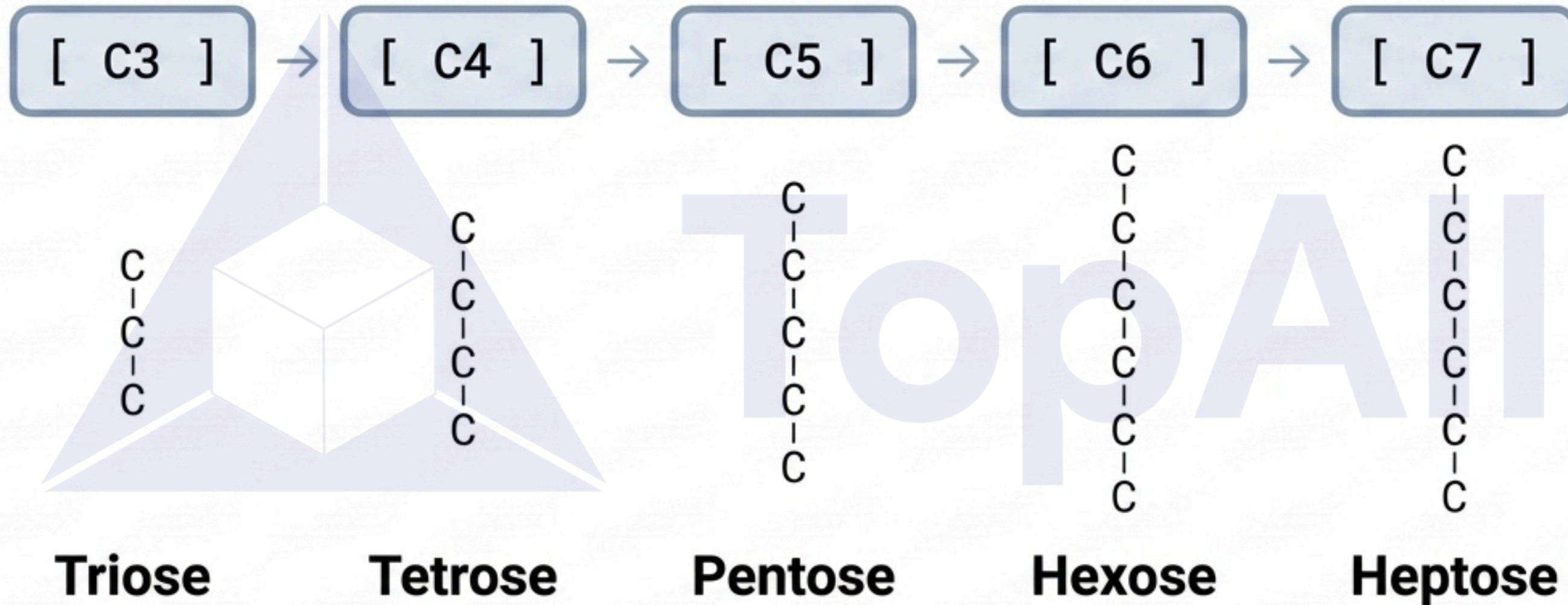
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Classification by Carbon Number



The number of carbon atoms dictates the structural root name of the monosaccharide.

Table 10.1: The Monosaccharide Matrix

	Aldehyde	Ketone
3 (Triose)	[Aldotriose]	[Ketotriose]
4 (Tetrose)	[Aldotetrose]	[Ketotetrose]
5 (Pentose)	[Aldopentose]	[Ketopentose]
6 (Hexose)	[Aldohehexose]	[Ketohehexose]
7 (Heptose)	[Aldoheptose]	[Ketoheptose]

Final Recap: The Naming Logic

[Functional Prefix
(Aldo / Keto)]

+

[Carbon Root
(tri, tetr, pent,
hex, hept)]

+

[Suffix
(-ose)]

=

[Monosaccharide
Name]

Card 1

[Aldo]

+

[hex]

+

[ose]

→

Glucose
(An Aldohexose)

Card 2

[Keto]

+

[hex]

+

[ose]

→

Fructose
(A Ketohexose)



10.1.2 Complete



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