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Ideas with IMPACT

ENGLISH LANGUAGE ARTS

Mapping Your Thoughts and Ideas

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Mapping Your Thoughts and Ideas

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Goals and Objectives:

My project involves making cards with different kinds of images, words, short sentences printed on cardstock that can be assembled by students in a multitude of ways. These cards can be used for concept understanding, to make associations, and explore the many different ways disciplines intersect. The objective of this lesson is to engage students in exploring the connections between topics, subject areas and their perceptions through concept maps. This project can be used by all age levels and in all disciplines it provides an interactive way for students to learn about any subject area.

Concept maps can be used to assess previous knowledge but also to check for understanding at all times leaving room for student creativity and ingenuity.

Here are some examples of how this lesson could be applied:

- To understand the sequence of events - ordering cards with plant growth stages for example.

- For cause and effect exercises - going from plant to systems, organs, tissue and cell levels.

- To learn vocabulary in any subject.

- Words that belong in the same group - example carbohydrates, fats, proteins and enzymes.

- Putting sentences together using proper verb conjugation.

- Historical timelines and connections between world events.

With this project you can integrate manipulatives into any subject area, improving comprehension and association of ideas. It is easy to make and economical, your kids will love it!

Florida Standards:

ELA.K12.EE.2.1 - Read and comprehend grade-level complex texts proficiently.

ELA.K12.EE.3.1 - Make inferences to support comprehension.

SC.912.L.14.7 - Relate the structure of each of the major plant organs and tissues to physiological processes.

SC.912.N.1.7 - Recognize the role of creativity in constructing scientific questions, methods and explanations.

SS.912.A.1.3 - Utilize timelines to identify the time sequence of historical data.

LAFS.1112.RH.1.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.

Course Outline and Overview:

This activity is for individual students but it also works for groups of 2-6 students and can be completed in one class hour. For demonstration purposes a science set of cards will be provided and the material is attached to this packet for your use.

Participants will be then divided into groups, and practice with the cards provided on how to do the activity. After completing the assignment, each group will present to the rest of the participants explaining the reasoning for their grouping of words/concepts.

After that, participants will have the opportunity to prepare their own cards for a concept map and if time allows, complete the assignment of grouping them according to logic and their understanding of the topic chosen.

Lesson Plan and Step-by-Step Instructions:

Lesson Title: Mapping Your Thoughts and Ideas

Background Knowledge: notions of photosynthesis, cell respiration, and plant storage.

Phase One:

For phase one, make copies of the deck of cards and give one per group. Make sure they have enough space to spread and organize their cards in many different ways.

1. Review the major physiological processes associated with plants.

2. Students are given one deck of cards pertaining to the topics addressed earlier.
3. Each group arranges the deck of cards in a way that makes sense to them.
4. Each student or as a group: write down 5 sentences linking the cards' contents as they are arranged.

Phase Two:

For phase two, allow groups to move around the class to watch their peers' presentations. Each station contains a table or several tables placed together, a cloth covering the table (not necessary but nice). Post it notes to write connecting words and writing supplies such as markers, pencils, and pens.

1. Show and Tell: Each group explains to the rest of the class the way they organized their cards and why. Questions and discussion ensue. They read their sentences and compare with each others' interpretations of the card arrangement.

Activity Reflection Questions:

1. How good is the class knowledge of the concepts discussed today based on the way each group arranged their cards?
2. Is there some topic(s) that needs reviewing?
3. What are the strong and weak points from the answers provided?
4. Explain what you learned from the way different groups organized their cards.

Resource List:

In order to complete this project teachers will need cardstock or index cards, a computer with a printer, scissors and a laminator (not essential).

List of materials: computer, cardstock or index cards and writing materials (markers, crayons, colored pencils and pens), post it notes.

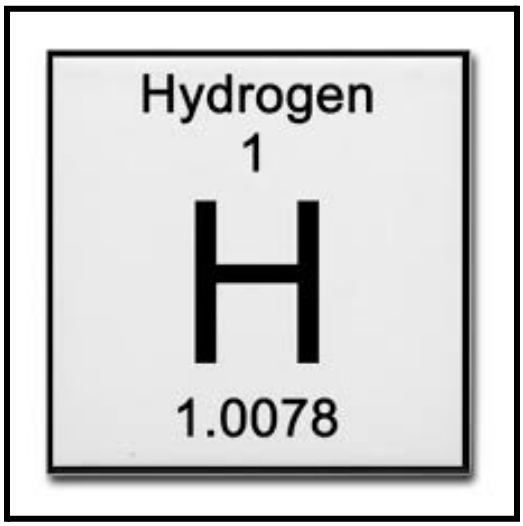
Variations:

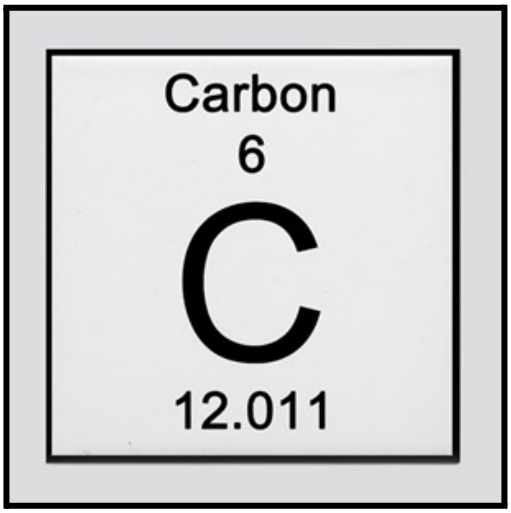
- Have the students make their own set of cards
- Use magazines, catalogs, newspapers to provide words and images for the cards.

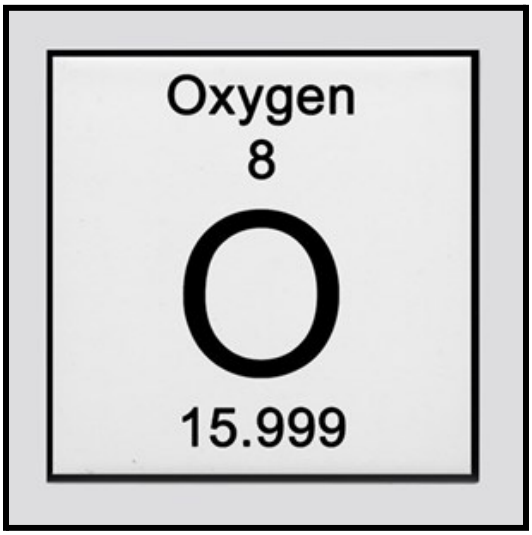
Adapter Application:

This project works well for classes with 24 or less students but it can be modified for or doubled for larger groups of students (12 groups instead of 6). It is geared for any age, level or subject area.

Sample Deck of Cards:







PREFIX

Poly-	Many, much, multiple	Polyuria: producing much urine

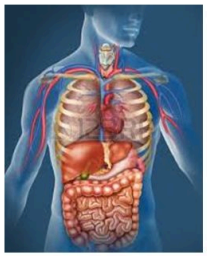
Veterinary Terminology TM 10

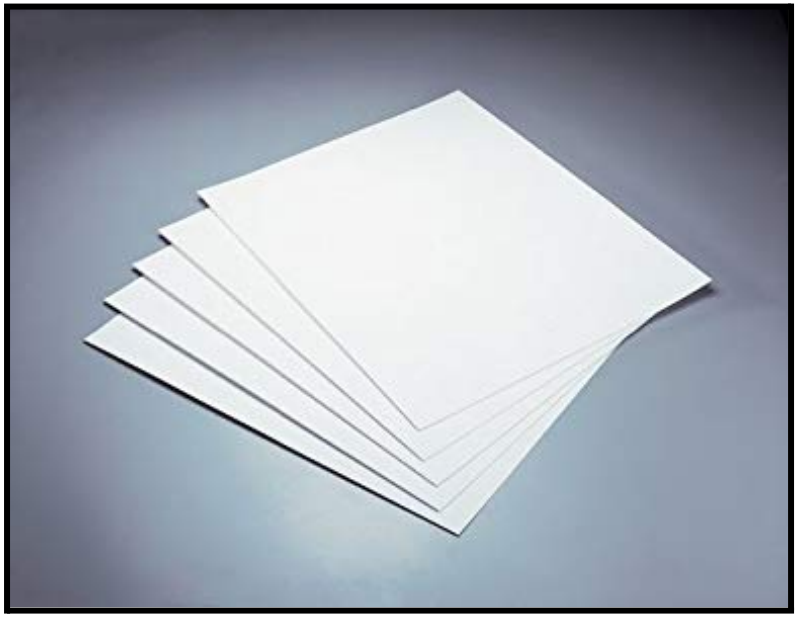
Spelling/Vocabulary
Prefix: mono

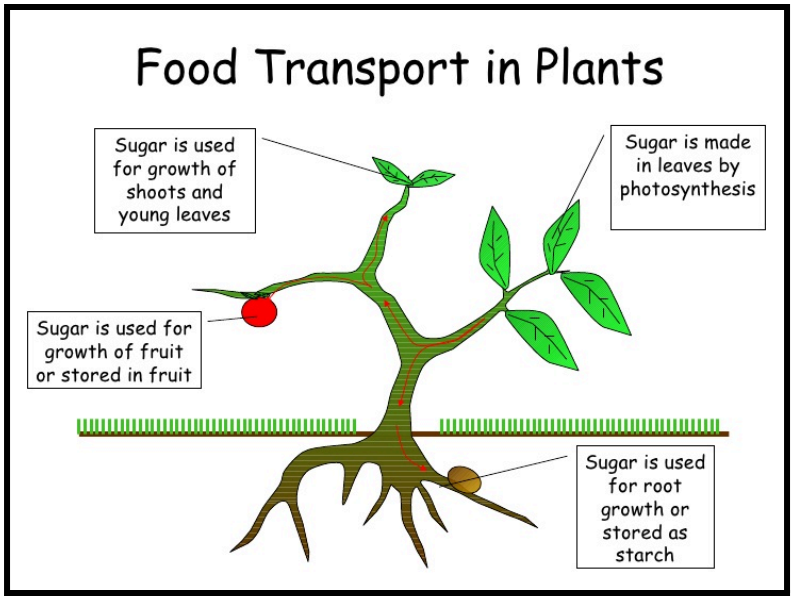
mono = one

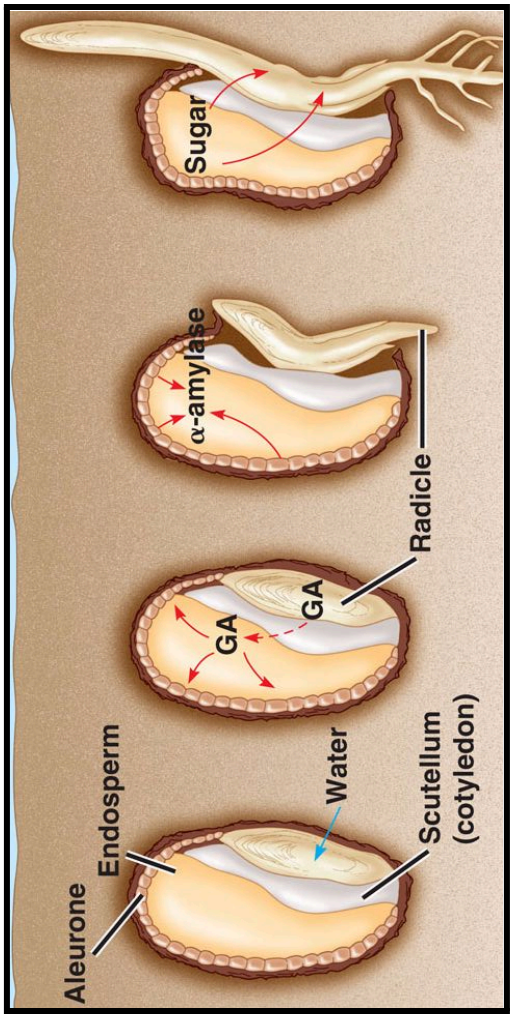
What is an Enzyme?

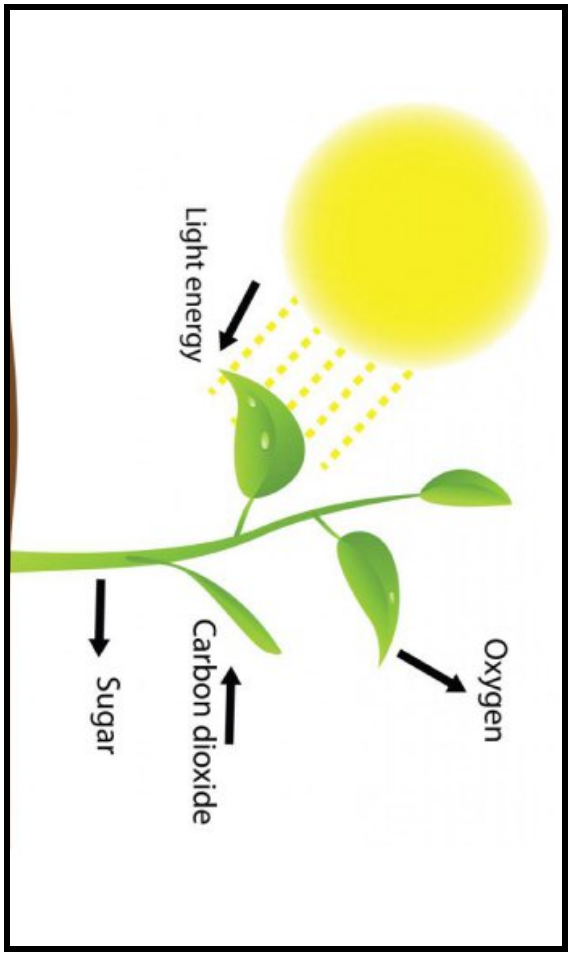
- Enzymes are types of **Proteins!**
- They end in **"ase"**
- **They speed up chemical reactions…**
  - Also Known As **CATALYST**



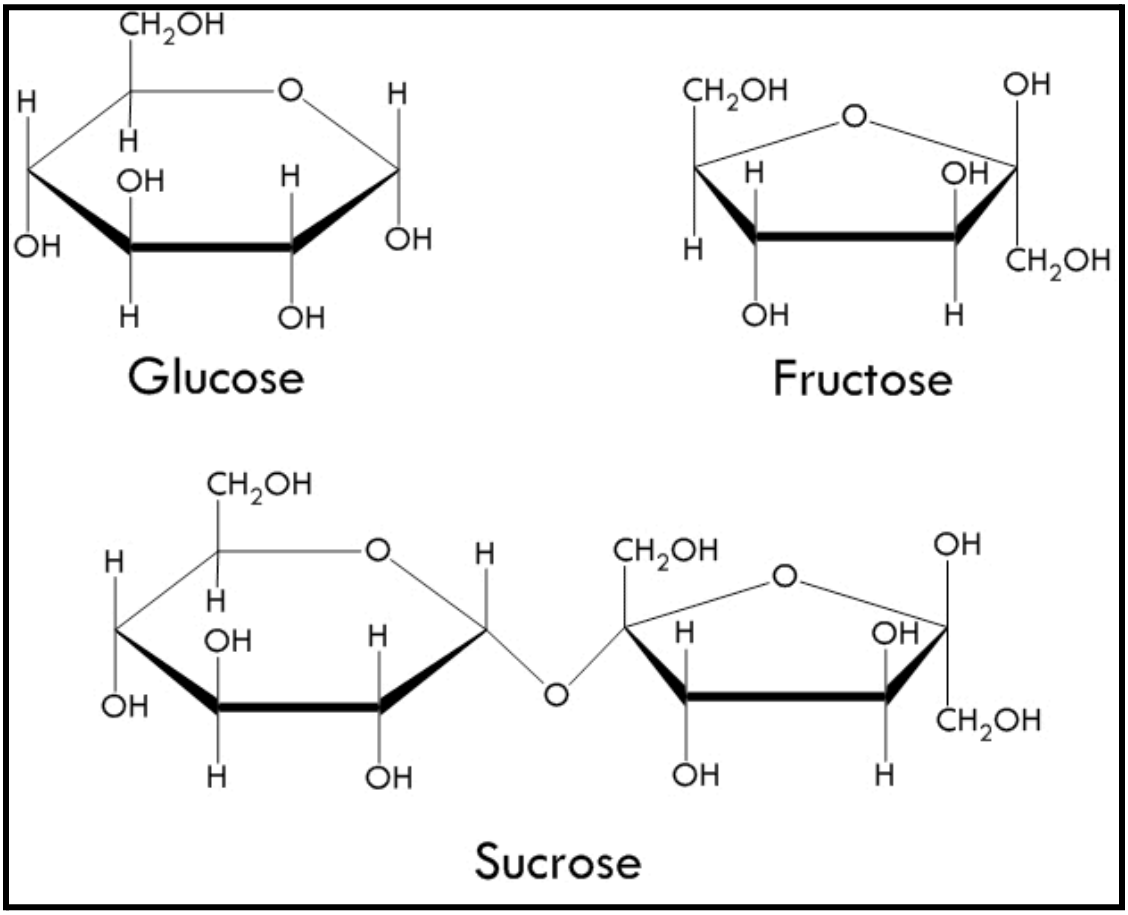


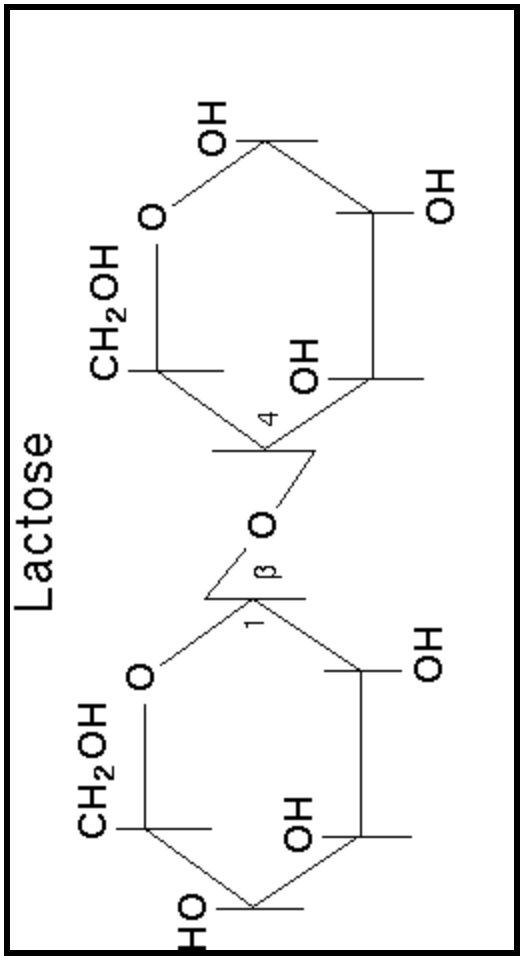

Food Transport in Plants
Sugar is used for growth of shoots and young leaves
Sugar is made in leaves by photosynthesis
Sugar is used for growth of fruit or stored in fruit
Sugar is used for root growth or stored as starch

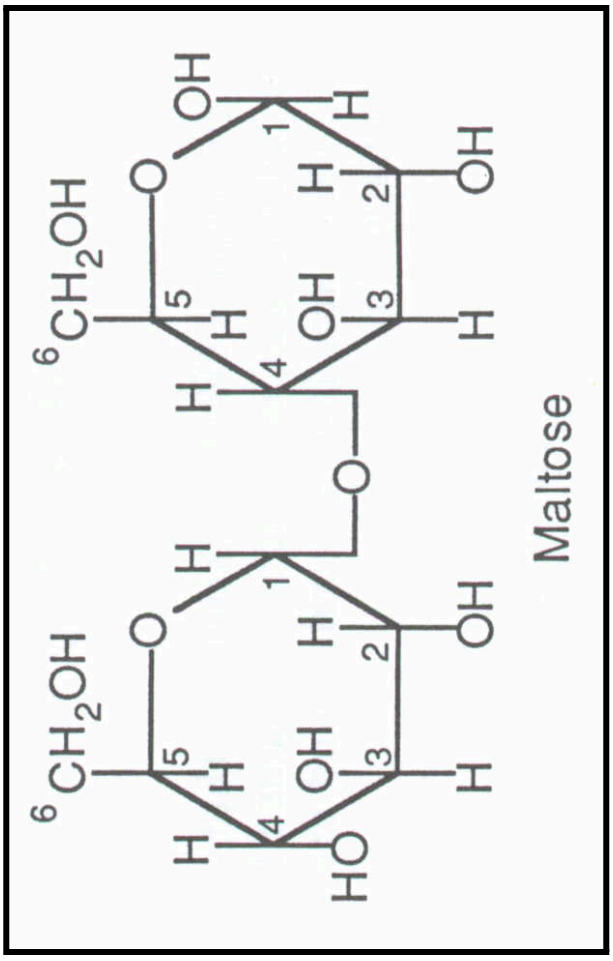

Sugar
α-amylase
Radicle
GA
GA
Water
Aleurone
Endosperm
Scutellum
(cotyledon)

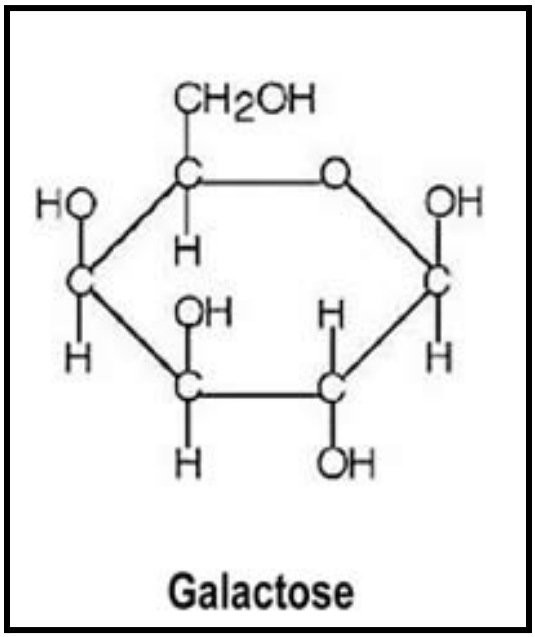

Light energy
Oxygen
Carbon dioxide
Sugar

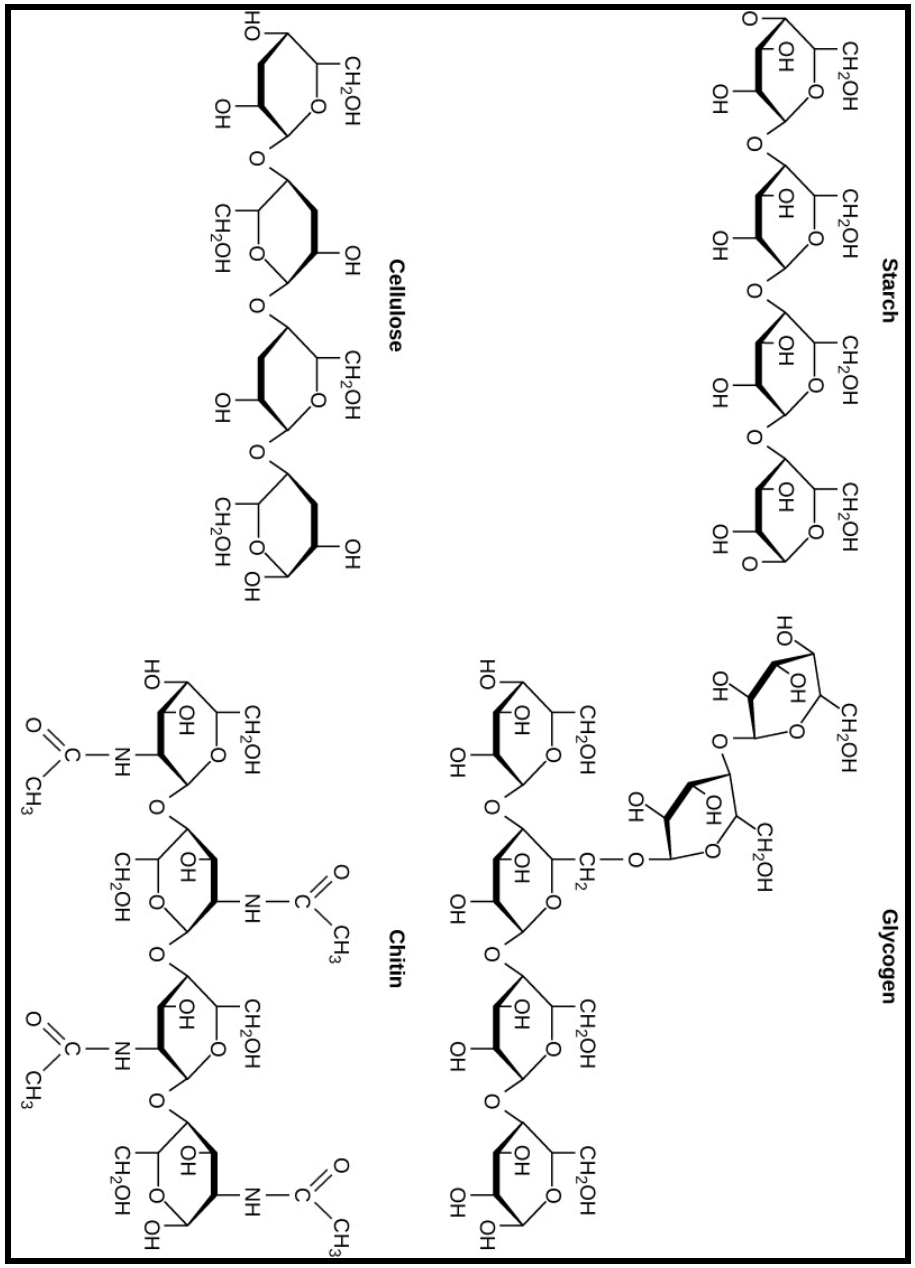

SUGAR

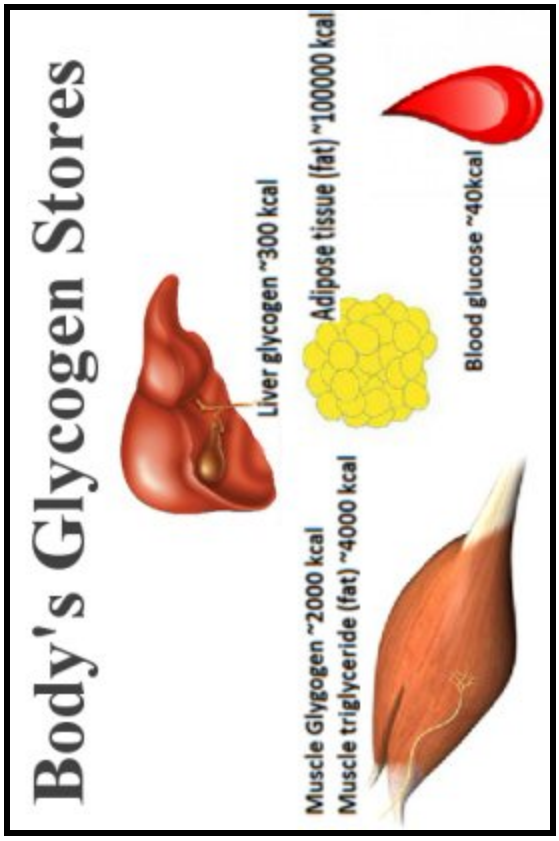

Glucose
Fructose
Sucrose

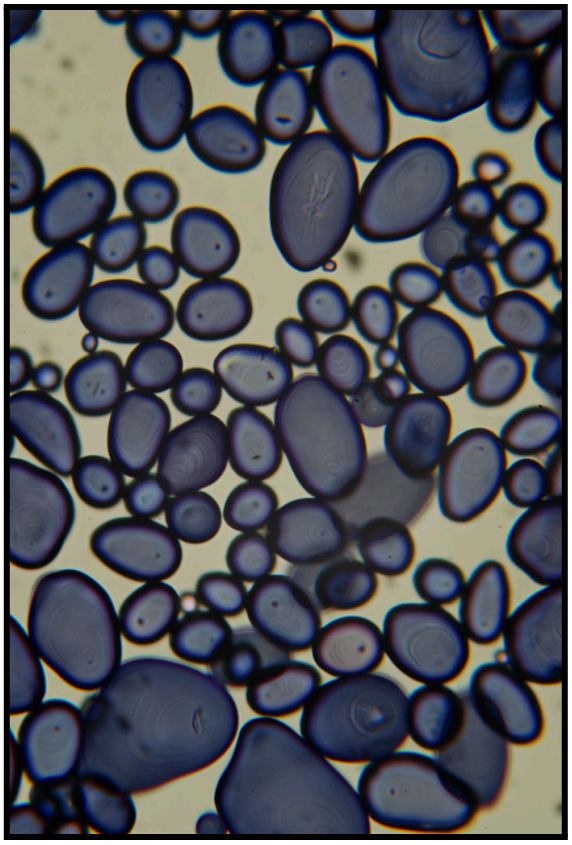

Lactose
OH
O
OH
CH2OH
OH
4
O
β
1
O
OH
CH2OH
OH
HO

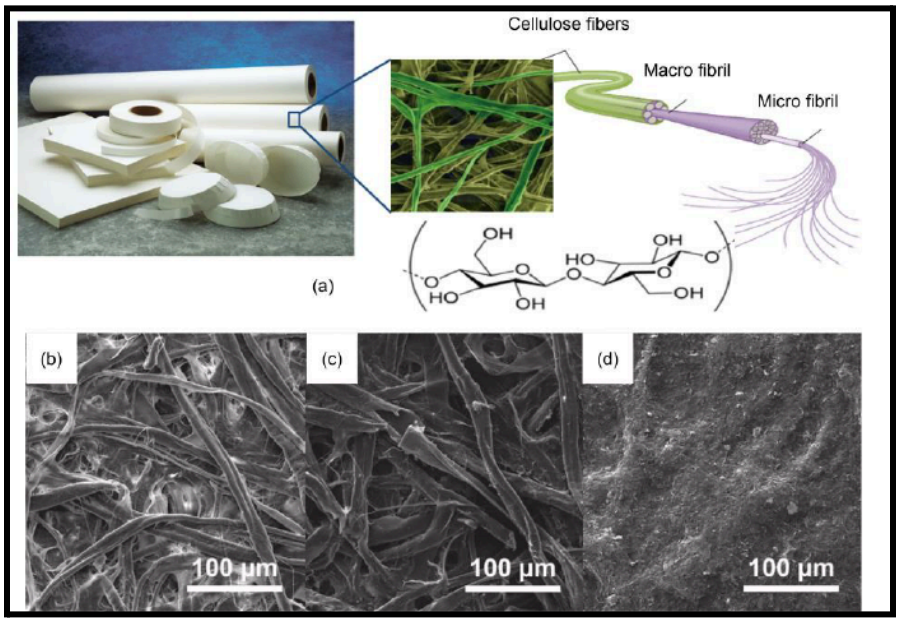

Maltose
OH
1
H
O
H
2
OH
6CH2OH
5
H
OH
3
H
4
H
O
H
1
O
H
2
OH
6CH2OH
5
H
OH
3
H
4
H
HO

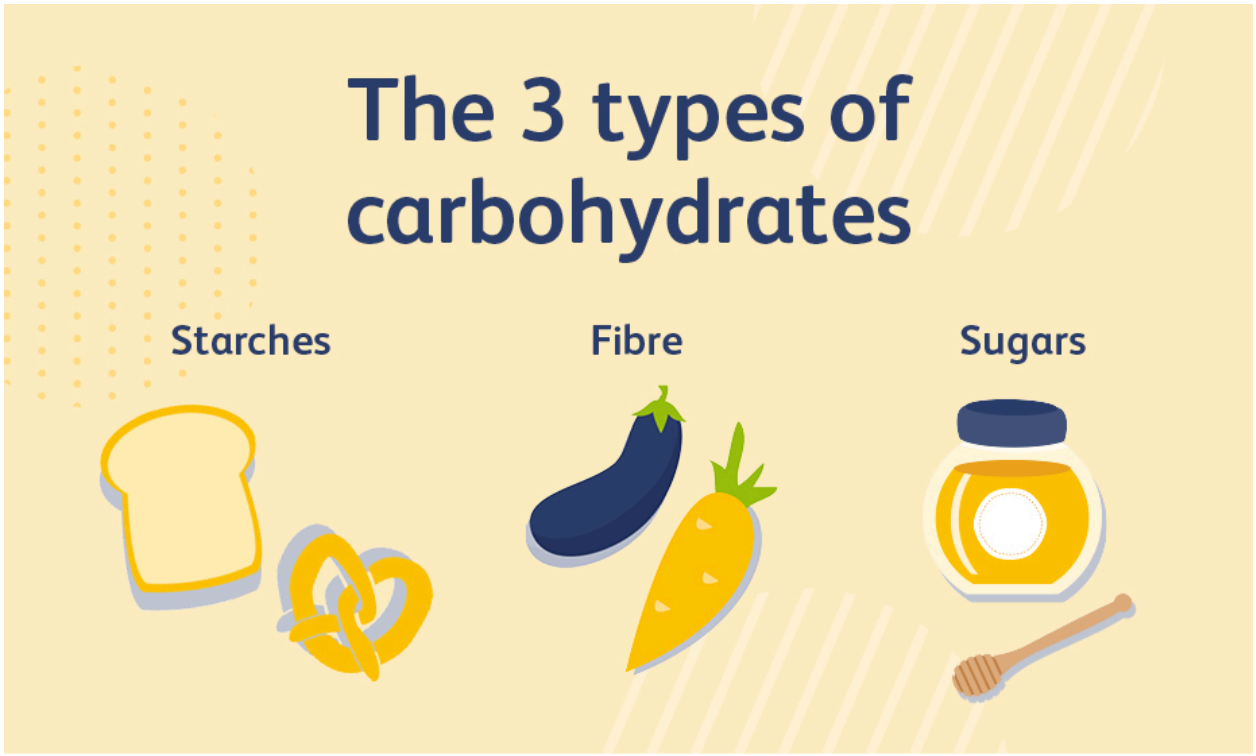

CH2OH
C
O
HO
OH
H
C
C
H
OH
H
H
C
C
H
OH
Galactose


Starch
Glycogen
Cellulose
Chitin


Body's Glycogen Stores
Liver glycogen ~300 kcal
Adipose tissue (fat) ~100000 kcal
Blood glucose ~40kcal
Muscle Glygogen ~2000 kcal
Muscle triglyceride (fat) ~4000 kcal




Cellulose fibers
Macro fibril
Micro fibril
(a)
(b)
(c)
(d)
100 µm
100 µm
100 µm



Energy

Storage

Germination

Seed

Carbohydrates

Simple Carbohydrates

Complex Carbohydrates

Monosaccharides

Polysaccharides

Disaccharide

Starch (Amylum)

Amylase

Cotyledon

Amyloplast

Cellulose

Enzyme