



# Macromolecules

Click sundae to reveal EQs

**Essential Question**

**What does a cell need to survive?**

**Essential Question**

**How does the types of foods we eat affect our body?**

## What is a MACROMOLECULE?

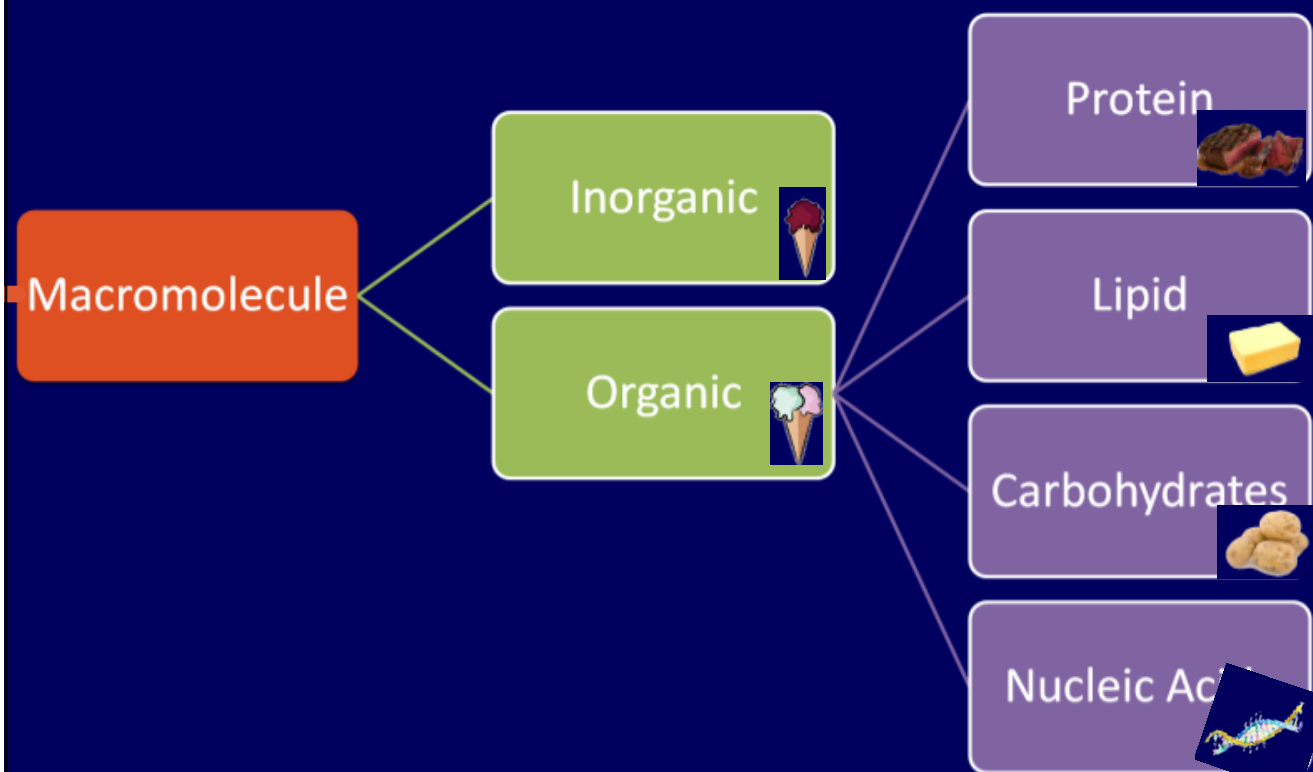
Macromolecule

**BIG**

*a bunch of  
atoms stuck  
together!*



# Types of Macromolecules



# Inorganic

- Made of 1 or less carbon atoms
- Not considered “living”  
(does not possess characteristics of life)
- Examples:  $\text{CO}_2$  (carbon dioxide)



# Organic

- Molecules made of at least 2 carbon atoms
- Comes from living things
- Made of monomers or polymers
  - Monomers = smaller subunits of a molecule chain
  - Polymers = lots of small subunits linked together



CLICK on ME!



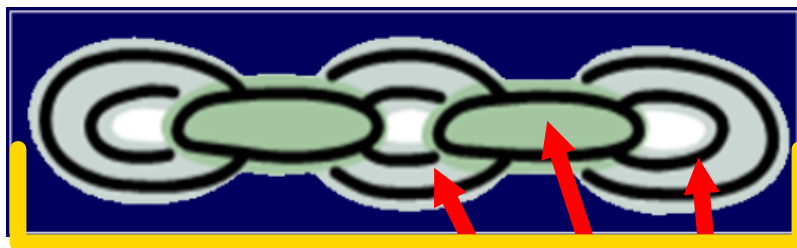
*if monomers = smaller units of a molecule chain*  
*if polymers = lots of small units linked together*

**THEN identify the parts below**



Click

Drag each  
word to proper  
box to check



**Polymer**

**Monomer**



# The 4 ESSENTIAL organic macromolecules

Click on  
each box

- Lipids = long-term energy storage in cells, forms membranes, and serves as hormones and insulation.
- Lipids do NOT dissolve in water.
- Types of lipids = fats, oils, phospholipids, cholesterol

- Carbohydrates = quick energy & short-term energy storage.
  - Play a structural role in plants, bacteria, and insects.
- monomer = monosaccharide*  
(EXAMPLE: GLUCOSE)
- polymer = polysaccharide*  
(EXAMPLE: CELLULOSE)

- Proteins perform many functions:
- Structural proteins  
(muscle, hair, feathers, spider webs, etc)
  - Enzymes ★
  - Antibodies
  - Transport carriers

*monomer = amino acid*  
(EXAMPLE: LYSINE)

*polymer = polypeptide*  
(EXAMPLE: ACTIN or COLLAGEN)

- Nucleic acids contains the genetic information of the cell/organism

*monomer = nucleotide*  
*polymer = DNA or RNA*



What is an  
ENZYME?

A specialized protein that  
acts as a *catalyst*.

Why is it  
IMPORTANT?

Speeds up chemical  
reactions without being used  
itself.

Without enzymes, reactions  
would occur too slowly for life  
to sustain itself.

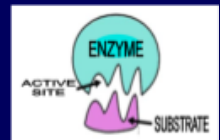
How does  
it WORK?

Does this by lowering the  
amount of energy the  
reaction needs in order to  
occur.

Drag lock to key

Enzymes are specific in that one  
enzyme molecule catalyzes only one  
type of chemical reaction

Enzymes have an  
*active site* for the  
substrate to bind to in  
order for the reaction to  
carry out



Think of it as a  
"lock & key"



Drag to label &  
match check to  
verify



Click KEY for video

← ENZYME

← SUBSTRATE

← ACTIVE SITE

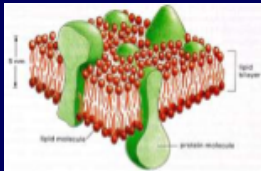






## Name that organic macromolecule!

Drag image down to orange bar



Drag word under description then drag orange bar up to check

**Long term  
energy**

**Acts as  
enzyme**

**Quick but  
short energy**

**Genetic  
information**

Nucleic Acid

Protein

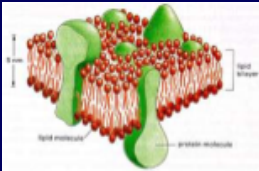
Lipid

Carbohydrate



# Name that organic macromolecule!

Drag image down to orange bar



Lipid

Nucleic Acid

Carbohydrates

Protein

Drag word under description then drag orange bar up to check

**Long term  
energy**

Lipid

**Acts as  
enzyme**

Protein

**Quick but  
short energy**

Carbohydrate

**Genetic  
information**

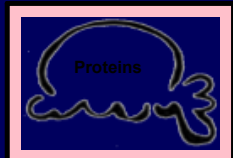
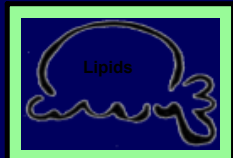
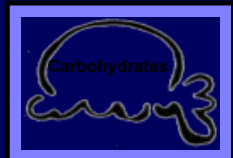
Nucleic Acid

Lipid

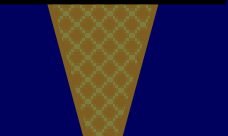
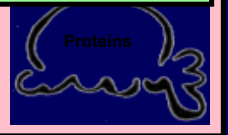
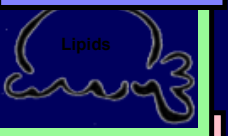
Protein

Carbohydrate

Nucleic Acid



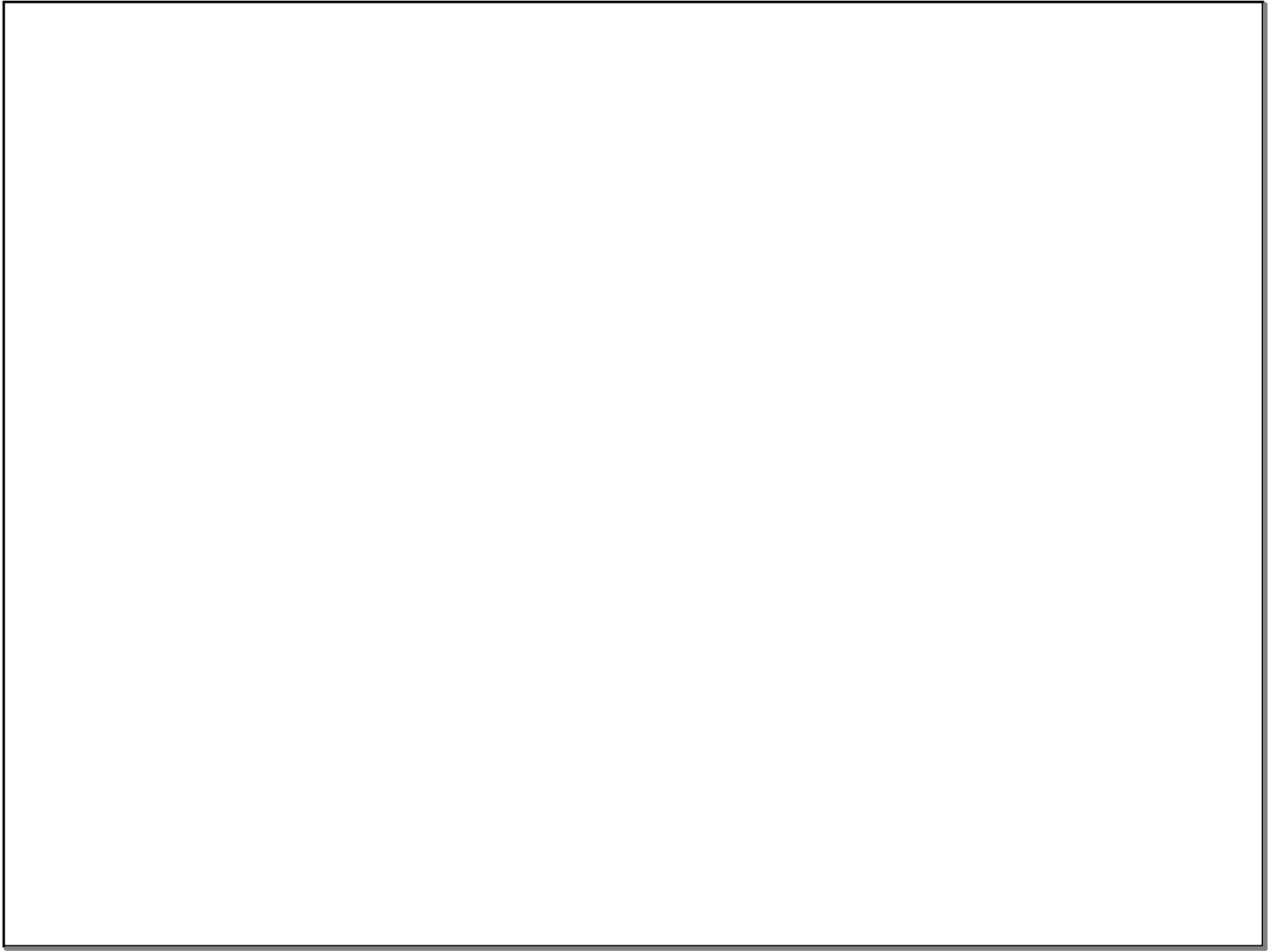
Click & drag  
scoop to  
cone



**Eat up!**  
We will be talking  
about these  
molecules throughout  
the rest of the year.

**These 4 essential  
macromolecules  
are the building  
blocks of life!**





Attachments

---

enzyme video.wmv