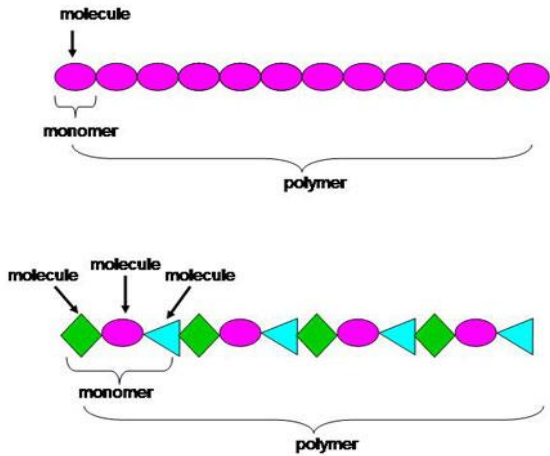


## *Monomers and Polymers Worksheet*

**PART 1** – All macromolecules are polymers made up of monomers. Monomers are repetitive units that form a larger compound. Look at the image below to familiarize yourself with monomer and polymer structure.



### Monomers of Biomolecules

Nucleic Acid	Carbohydrate	Lipid	Protein
<p>Nucleotide</p>	<p>Monosaccharide glucose</p>	<p>Glycerol Fatty Acids</p>	<p>Amino Acid</p>
Amoeba Sisters			#AmoebaGIFs

Example: If words are the polymer, letters are the monomer.      If a sentence is the polymer, words are the monomer.

**PART 2** - Macromolecules are large molecules (polymers) made up of smaller subunits called monomers and when monomers link together they form polymers.

1. Match the MONOMer on the left to the POLYmer on the right.

- |            |       |                |
|------------|-------|----------------|
| Metal link | _____ | A. Blanket     |
| Brick      | _____ | B. Metal chain |
| Outfits    | _____ | C. Wall        |
| Yarn       | _____ | D. Wardrobe    |

2. Match the MONOMer on the left to the macromolecules on the right.

- |                          |       |                 |
|--------------------------|-------|-----------------|
| Fatty acids and glycerol | _____ | A. Protein      |
| Monosaccharide           | _____ | B. Lipid        |
| Nucleotide               | _____ | C. Nucleic acid |
| Amino acid               | _____ | D. Carbohydrate |

3. Explain how monomers are related to polymers.

**PART 3** - Complete the chart below. Remember *mono* means one and *poly* means many.

MACROMOLECULES	FOOD EX.	MONOMER	POLYMER
Carbohydrates			
Lipids			
Proteins			
Nucleic Acids	X		

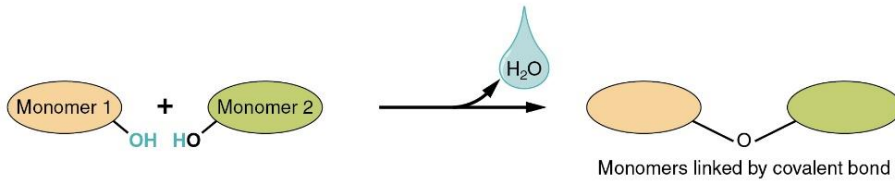
Your best friend tells you that they are deathly allergic to certain amino acids in food. Your mom has prepared dinner already, so you need to tell her not to serve what macromolecule to them?

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**PART 4** - Study the image below then answer the questions on the right.

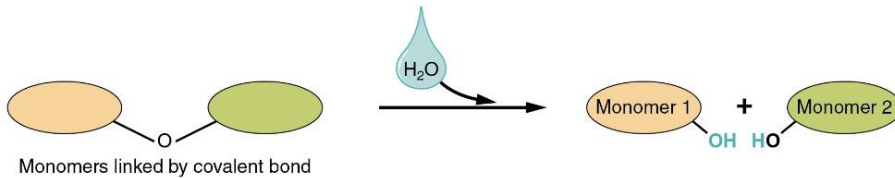
**(a) Dehydration synthesis**

Monomers are joined by removal of OH from one monomer and removal of H from the other at the site of bond formation.



**(b) Hydrolysis**

Monomers are released by the addition of a water molecule, adding OH to one monomer and H to the other.



1. Which process breaks polymers into monomers?
2. Which process bonds monomers into polymers?
3. Which reaction stores energy?
4. Which reaction releases energy?