

Macromolecules Stations-

INSTRUCTOR:

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Use the following template to write your responses for the Macromolecules Stations:



Station 1 - Watch It: Answer the following based upon the content in the video



1.	
2.	
3.	
4.	
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7.	
8.	
9.	



Station 2 - Video It

Video Link: _____

- "In order to maintain balance or homeostasis, a balanced diet must consist of...(think 3 of the 4 macromolecules)"
- "The molecule that provides the most energy is..."
- "The molecule that we should eat in moderation is...due to the fact that...."
- "The molecule that helps build muscle and provides for numerous cellular activities is..."
- "The major components of all of the molecules are the elements..."



Station 3 - Write It

In a quickwrite (3-5 Sentences) - Using the image below...

Which categories of amino acid would you expect to find on the surface of a soluble protein, and which would you expect to find in the interior? What distribution of amino acids would you expect to find in a protein embedded in a lipid bilayer?

AMINO ACID		
$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{H} \\ \text{Glycine} \end{array}$	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_3 \\ \text{Alanine} \end{array}$	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH} \\ \quad \\ \text{CH}_3 \text{ CH}_3 \\ \text{Valine} \end{array}$
$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{CH}_2\text{CH}_3 \\ \text{Leucine} \end{array}$	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{S} \\ \\ \text{CH}_3 \\ \text{Methionine} \end{array}$	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{H}-\text{C}=\text{CH}_2 \\ \text{Isoleucine} \end{array}$
$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{H}_2\text{C}-\text{CH}_2 \\ \\ \text{H}_2\text{C} \\ \text{Proline} \end{array}$		
Polar, uncharged R groups		
$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{SH} \\ \text{Cysteine} \end{array}$	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2\text{OH} \\ \text{Serine} \end{array}$	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{C}=\text{O} \\ \\ \text{H}_2\text{N} \\ \text{Asparagine} \end{array}$
$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{H}-\text{C}-\text{OH} \\ \\ \text{CH}_3 \\ \text{Threonine} \end{array}$		$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{C}=\text{O} \\ \\ \text{H}_2\text{N} \\ \text{Glutamine} \end{array}$
Positively charged R groups		
$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{NH}_2^+ \\ \text{Lysine} \end{array}$	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{NH} \\ \\ \text{C}=\text{NH}_2^+ \\ \text{Arginine} \end{array}$	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{CH} \\ \quad \\ \text{C}=\text{NH}^+ \\ \text{Histidine} \end{array}$
Negatively charged R groups		
$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{COO}^- \\ \text{Aspartate} \end{array}$		$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{COO}^- \\ \text{Glutamate} \end{array}$
Nonpolar, aromatic R groups		
$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{C}_6\text{H}_5 \\ \text{Phenylalanine} \end{array}$	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{C}_6\text{H}_4\text{OH} \\ \text{Tyrosine} \end{array}$	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_2 \\ \\ \text{C}_8\text{H}_6\text{N} \\ \text{Tryptophan} \end{array}$

Figure 3.23 There are 20 common amino acids commonly found in proteins, each with a different R group (variant group) that determines its chemical nature.



Station 4 - Examine It

Using the nutrition labels below, determine which is the most healthy for human consumption. Justify your response.

Nutrition Facts	
21 servings per container	
Serving size	3 oz (200g)
Amount Per Serving	
Calories	230
% Daily Value*	
Total Fat 9g	12%
Saturated Fat 3g	15%
Trans Fat 1g	
Cholesterol 200mg	67%
Sodium 780mg	34%
Total Carbohydrate 55g	20%
Dietary Fiber 0g	0%
Total Sugars 54g	
Includes 0g Added Sugars	0%
Protein 0g	0%
Not a significant source of vitamin D, calcium, iron, and potassium	
*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

A

Nutrition Facts	
21 servings per container	
Serving size	3 oz (200g)
Amount Per Serving	
Calories	230
% Daily Value*	
Total Fat 3g	4%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 100mg	33%
Sodium 600mg	26%
Total Carbohydrate 28g	10%
Dietary Fiber 0g	0%
Total Sugars 20g	
Includes 0g Added Sugars	0%
Protein 0g	0%
Not a significant source of vitamin D, calcium, iron, and potassium	
*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

B



Station 5 - Answer It

1.	
2.	
3.	
4.	
5.	

6.	
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Station 6 - Perform It



1. Go the following website:

https://wilmu.mediaspace.kaltura.com/media/Sci+251+-+Lab+Simulation+-+Biological+Macromolecules/0_ibkdoqzy or use the QR code right -

2. Answer the questions provided:

1.	
2.	
3.	



Station 7 - Read It

Read the following Article and fill out the chart below:

<https://ift.onlinelibrary.wiley.com/doi/full/10.1111/j.1541-4329.2010.00101.x>

Main Idea	summary
Inferences	How is it connected to learning



Station 8 - Evaluate it

what do I know? List at least 5 items:	what do I wonder? List at least 4 items:	what have I learned? List at least 5 items:
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