

SBI4U Review

Exam Format

	# Questions	Marks
Multiple Choice	55	55
Matching	15	15
Short Response	9	40
		110

Duration: 2.5 hours

Weight: 30%

- Starts at 9 AM
- Arrive 8:45
- Full uniform
- Schoolbags at side of room
- Bring textbook
- At desk: textbook, pencil/eraser/pen
- No phones
- No calculators

Appreciating biology is about identifying the **enduring understandings**.

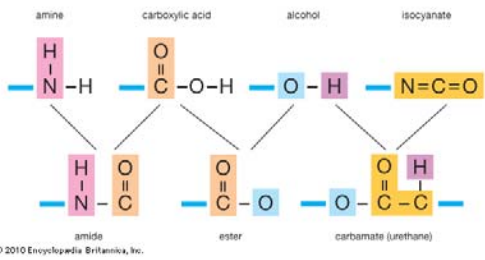
- Enduring Understandings = Concepts and Big Ideas
 - Examples vs. "Facts"
 - Fundamental ideas that can enhance content understanding from all units (even from last year!)
- Cross-curricular connections and themes
 - Be able to identify examples from as many units as possible

Enduring Understanding	Specific Details	Examples
A molecule's polarity influences the way it interacts with other molecules.	<ul style="list-style-type: none"> • Ionic charges, or polar functional groups make a molecule hydrophilic. • Hydrocarbons are hydrophobic. • "Like dissolves like". 	<ul style="list-style-type: none"> • Lipids are insoluble in water. • The cell membrane is mostly hydrophobic. • Side chains of amino acids determine AA properties. • Ions and polar molecules cross channel proteins • Steroid vs. protein hormones

Unit 1: Biochemistry

- Basic molecular properties
- Biochemical reactions
- Macromolecules
- Membranes & Transport

Functional groups in monomers and polymers



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Functional groups

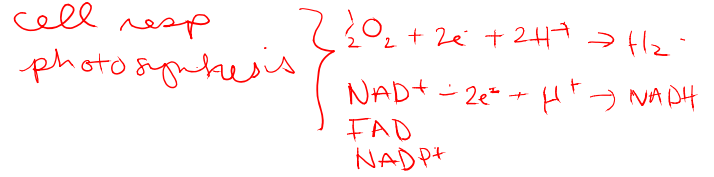
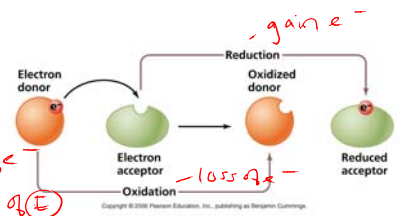
- Physical properties
- Chemical properties

Redox

- Specific examples?

- Energy changes

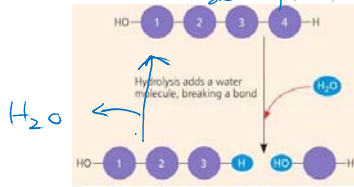
Reduction = gain of e⁻ + gain of ⊕



Hydrolysis

Condensation / dehydration

- Specific examples?
- Energy changes



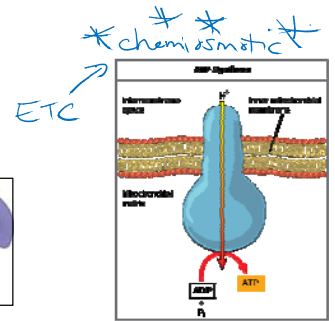
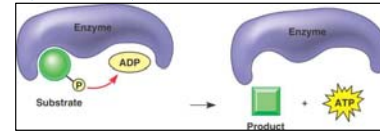
- polymerization
- anabolism
-(glucose)_n → glycogen ⇒ energy storage

Phosphorylation

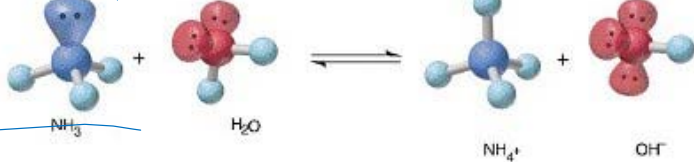
- Specific examples?

- Energy changes - *⊕ storage*

Substrate level



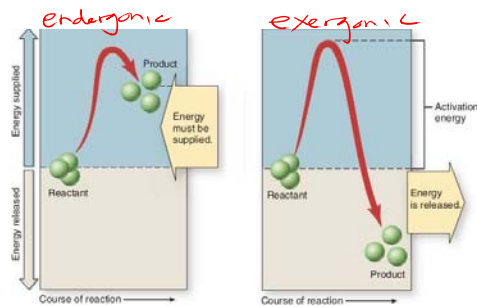
A/B



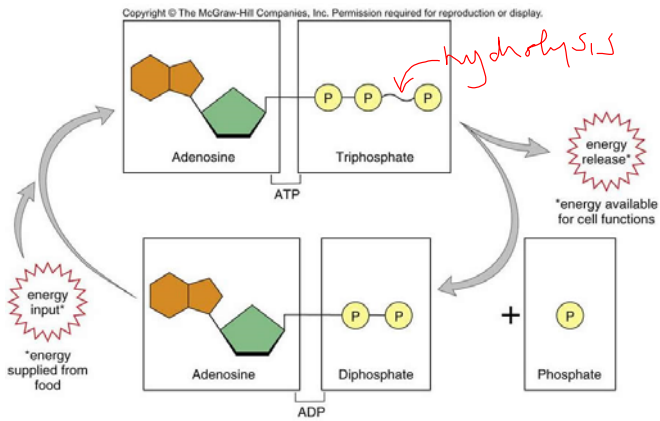
- Significance in the body?

optimal pH
↑
proteins

Energy changes in reactions

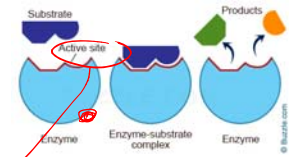


- Activation energy?



Enzymes

- function - speeds it up
- significance - allows rxns at body temp
- Importance of shape



- allosteric inhibition (operons)
 - competitive inhibition (eg/rubisco + O₂)

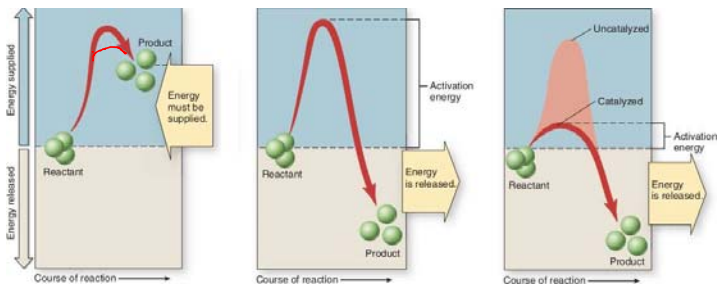
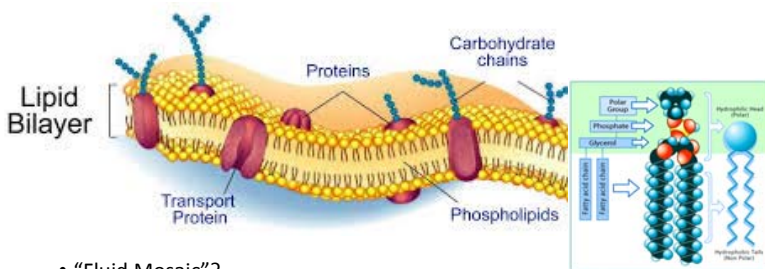


TABLE 4.1 MACROMOLECULES		
Monomer	Polymer	Cellular structure
Amino Acid	Polypeptide	Intermediate filament
Nucleotide	DNA strand	Chromosome
Monosaccharide	Starch	Starch grains in a chloroplast
Fatty acid	Fat molecule	Adipose cells with fat droplets



- "Fluid Mosaic"?
- important properties

- Examples?
- metabolism
 - nervous system
 - excretory system

