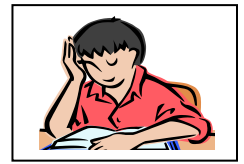




✚  
J.M.J.

# Biology



## Honors and A1 Trimester 1 Review Sheet 2016-17 – Chapters 1 and 2

There are 175 multiple choice questions for Honors and 150 multiple choices for A1 that are worth 75 pts. Part II - Honors and Academic I have a mandatory essay worth 5 points. Part III - Honors has a choice of 5 of 6 short written response sets worth 4 points each and Academic I has a choice of four out of six short written response sets worth 5 points each. The best way to prepare for the test is to go over all your notes, old tests, quizzes, homework and vocabulary. This review sheet is more or less ordered as the test is written. **PLEASE BE MINDFUL OF YOUR HANDWRITING – IF YOUR TEACHERS CAN'T READ IT WE CAN'T GRADE IT!**

The room assignments are:

Mr. Codling: period 5 – 227 period 6 – 231 period 7 – 233  
Mr. Fechtmann: period 1 - 229 period 4 – 239 period 6 - 112 period 8 – 234  
Mrs. Klimkowski: period 2 – 222 period 3 – 223 period 4 – 225 period 9 – 226

Mrs. Masiulis: period 1 – 235 period 5 – 237 period 8 – 238  
Miss Vigario: period 3 – 236

The diagrams and the written responses are within this review sheet:

### Chapter 1

#### Scientists – Chapter 1 & 3:

Charles Darwin

Anton von Leeuwenhoek

Robert Hooke

Rudolph Virchow

Matthias Schleiden

Theodore Schwann

#### 1.1 Scientific Investigation

inductive reasoning

deductive reasoning

hypothesis

theory

testable and falsifiable

data

law

conclusion

scientific method

discovery science

hypothesis-based science

#### 1.2 Science Experiments

variable

experiment

controlled experiment

control

types of microscopes

light microscope

Transmitting electron microscope

Scanning electron microscope

resolution

**1.2 The microscope – use your microscope worksheet to answer these questions**

	Name	Function
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		

**Use the letters in the diagram below to identify the part with the function**

\_\_\_\_\_ This adjustment should be used with low power objectives.

\_\_\_\_\_ This holds objectives and it rotates.

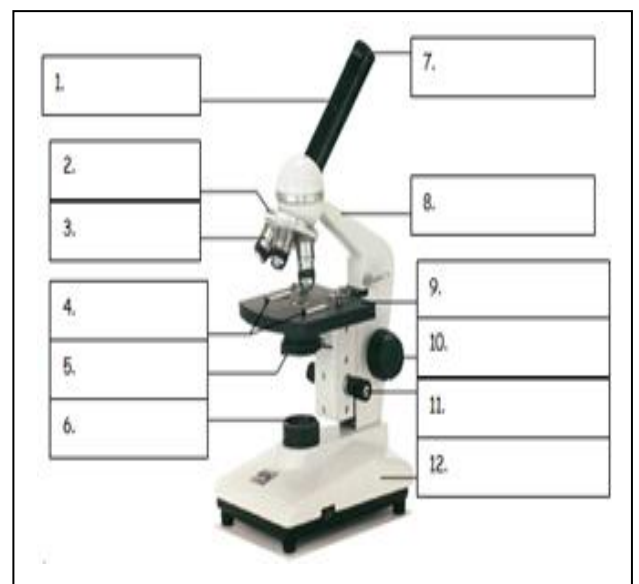
\_\_\_\_\_ This is the flat surface where the specimen is placed.

\_\_\_\_\_ This is where the ocular is located.

\_\_\_\_\_ This provides light to see the specimen.

\_\_\_\_\_ This adjustment is the only one that should be used with the high power objective.

\_\_\_\_\_ This regulates the amount of light reaching the slide



### 1.3 Scientific Theories

Cell Theory and 3.1

evolution and 1.8

Theory of Evolution

### 1.4 Characteristics of Life

6 characteristics of life in addition to the information in book check this out! [http://infohost.nmt.edu/~klathrop/7characteristics\\_of\\_life.htm](http://infohost.nmt.edu/~klathrop/7characteristics_of_life.htm)

1.

2.

3.

4.

5.

6.

### 1.5 Principles of Biology

The four principles of Biology:

1.

2.

3.

4.

### 1.6 Interdependence of Living Things

symbiosis

### 1.7 Organization of Living Things

organism

organ system

organ

tissue

cell

## Chapter 2 – Chemical Basis of Living Organisms

### Chemical Symbols and the Elements

ELEMENT			ELEMENT, COMPOUND or ION
Carbon		He	
Oxygen		P	
Potassium		N	
Hydrogen		NaCl	
Calcium		H <sup>+</sup> (H <sub>3</sub> O <sup>+</sup> )	
Iron		OH <sup>-</sup>	

## 2.1 Significance of Carbon

carbon

compound

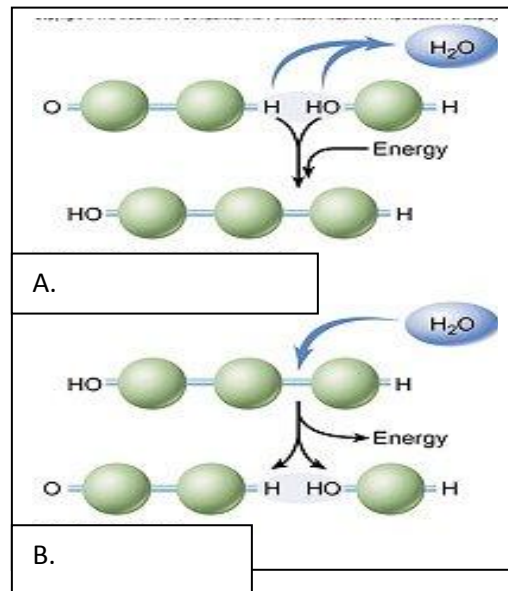
Dehydration Synthesis

Hydrolysis

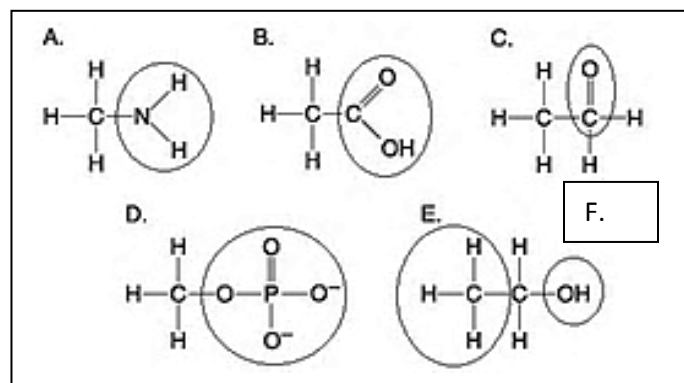
A is \_\_\_\_\_

B is \_\_\_\_\_

Organic compounds

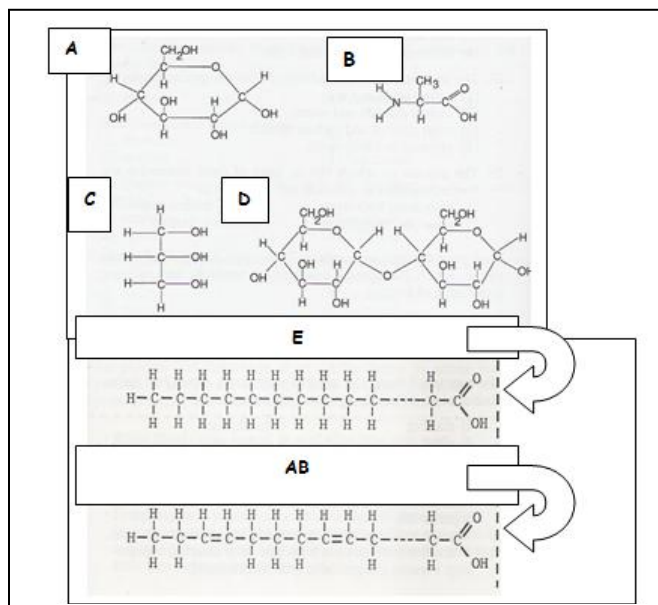


	NAME	WHERE ARE THESE FOUND? (IN WHAT ORGANIC COMPOUND)
A.		
B.		
C.		
D.		
E.		
F.		



Identify the structures to the right:

- A.
- B.
- C.
- D.
- E.
- AB.



## 2.2 Carbohydrates

structure and composition of carbohydrates

carbohydrate

chemical (molecular) formula

glucose

isomer

## 2.3 Lipids

structure and composition of lipids

saturated fatty acid

unsaturated fatty acid

fats, oils, waxes

lipid

phospholipid

steroid

cholesterol

## 2.4 Proteins

structure and composition of proteins

peptide bond

building blocks

function

enzymes

antibodies

## 2.5 Nucleic Acid

Structure and composition of a nucleotide – complete the chart:

	DNA	RNA
<b>Sugar</b>		
<b>Bases</b>		
<b>Strands</b>		
<b>Shape</b>		
<b>Types</b>		
<b>Location in the cell</b>		
<b>Nucleotide Components</b>		

## 2.6 Biochemical Reactions

product

reactant

Label this equation:



## 2.9 Enzymes and 2.10 Enzyme Function

Use the diagram to the right to answer the following questions

What letter is the substrate?

What letter is the enzyme?

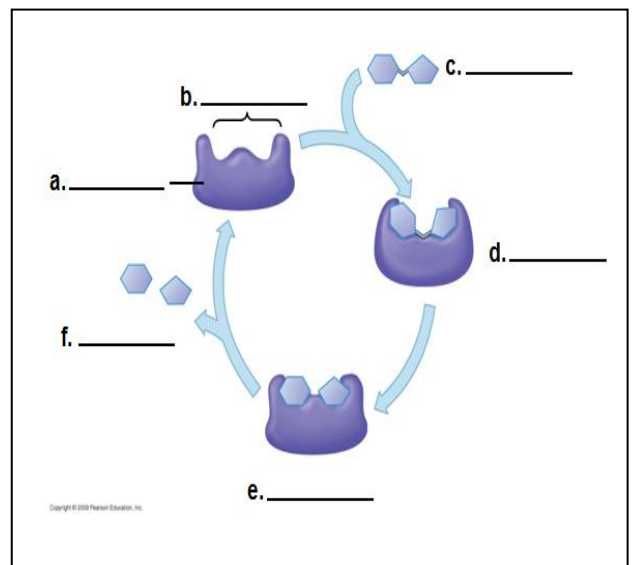
Where is the active site?

What type of reaction is this?

What is the reverse reaction?

What is the enzyme-substrate complex?

What is the suffix used to name an enzyme?



## 2.11 Water and Life

Water – why is it necessary for life?

## 2.12 Acids and Bases in Biology

acid

base

hydronium ion ( $\text{H}_3\text{O}^+$ )

hydroxide ion ( $\text{OH}^-$ )

## Chapter 3 – Cell Biology 1: The Cell and Cell Structures

### 3.1 Parts Common to the Cell

cell

cytosol

The four common parts to all cells:

- 1.
- 2.
- 3.
- 4.

### 3.2 Prokaryotic and Eukaryotic Cells

Prokaryotic cell

nucleoid

Eukaryotic cell

### 3.3 Viruses

capsid

prophage

emerging viruses

phages

prions

viroids

### 3.4 Phospholipid Bilayer

hydrophobic

hydrophilic

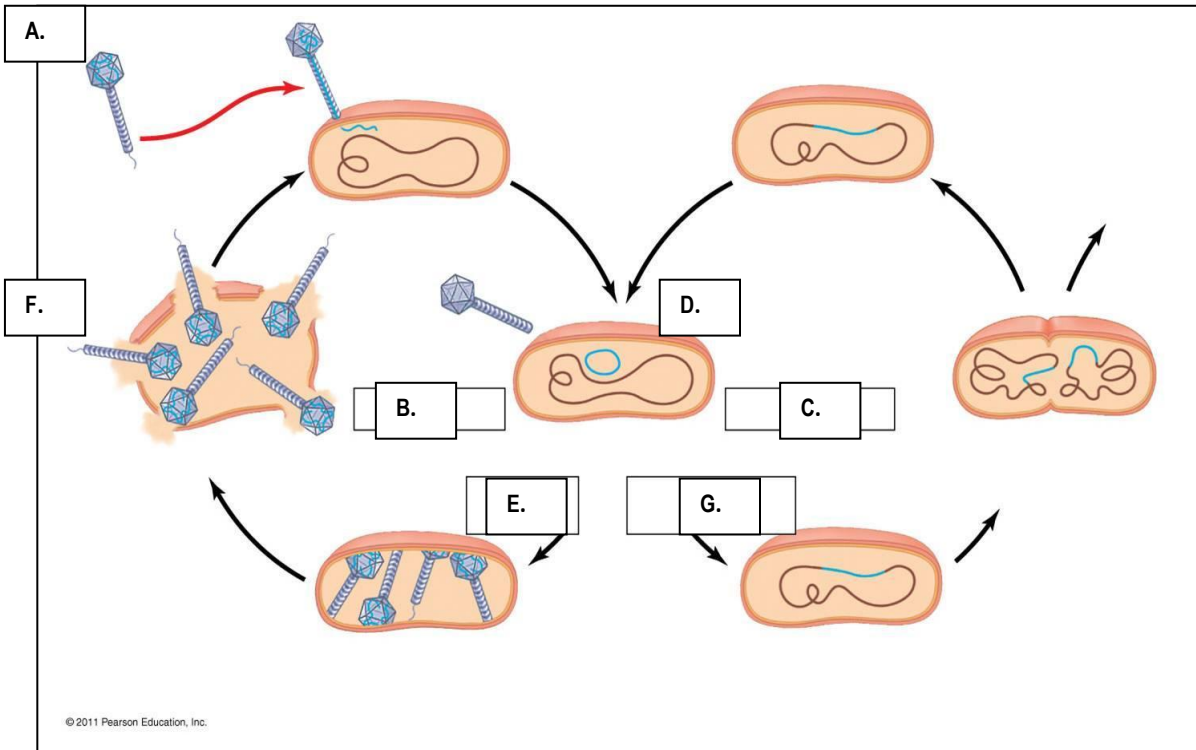
structure of the plasma membrane

selectively permeable

fluid mosaic

### 3.3 Viruses

Answer the following questions base on this diagram:



What is A?

What cycle is B

What cycle is C

What is happening at D?

What is happening at E?

What is happening at F?

What happens after F?

What is G called?

Which cycle produces immediate infection?

In which cycle does the virus remain dormant?

### 3.5 Membrane Proteins

integral membrane proteins

peripheral membrane proteins

### 3.6 Cytoplasm and Cytoskeletons

microtubules

microfilaments

intermediate filaments



### 3.7 Cell Nucleus

nucleolus

chromatin

### 3.8 Ribosomes and Mitochondria

ribosome

mitochondria

matrix

cristae

ATP

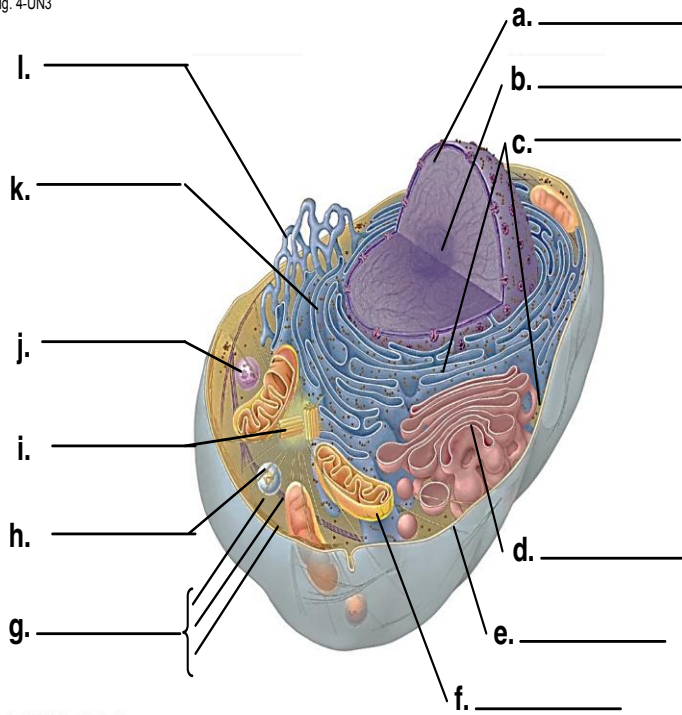
### 3.9 Other Cell Organelles and 3.10 Plant Cell Structures

endomembrane system

Golgi apparatus

Cell Part	Function (job)	Plant, Animal or Bacterial Cell
1. Nuclear envelope		
2. Nucleus		
3. Nucleolus		
4. Mitochondria		
5. Endoplasmic reticulum		
6. Golgi apparatus		
7. Central Vacuole		
8. Ribosome		
9. Cell wall		
10. Chloroplast		
11. Centriole		
12. Plasma Membrane		

Fig. 4-UN3

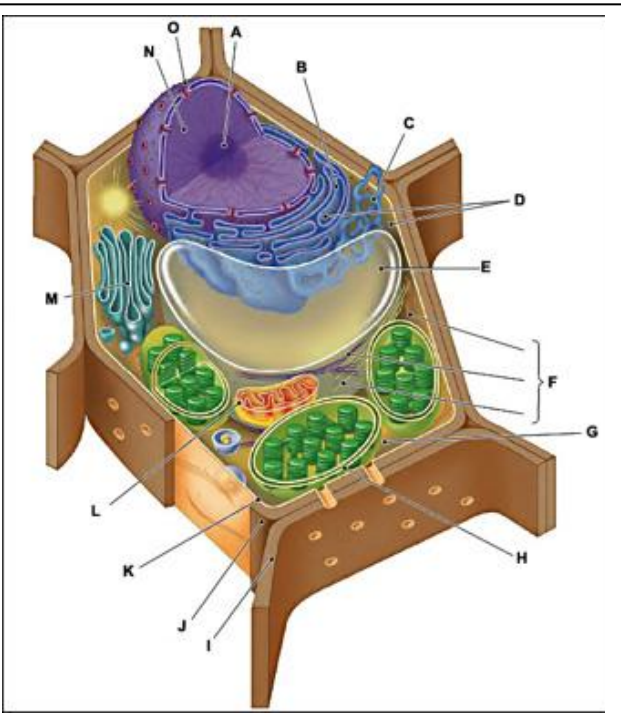


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Identify the organelles:  
What type of cell is this?

Is it prokaryotic or eukaryotic?

- A.
- B.
- C.
- D.
- E.
- F.
- G.
- H.
- I.
- J.
- K.
- L.



Identify the organelles:  
What type of cell is this?

Is it prokaryotic or eukaryotic?

- A.
- B.
- C.
- D.
- E.
- F.
- G.
- H.
- I.
- J.
- K.
- L.
- M.
- N.
- O.

## Chapter 4 – Cell Biology 2: Transport in Cells

### 4.1 Diffusion

passive transport

diffusion

concentration gradient

equilibrium

What substances pass through the membrane easily?

### 4.2 Osmosis

osmosis

solute

solvent

solution

hypertonic

hypotonic

isotonic

turgid

lyses

plasmolysis

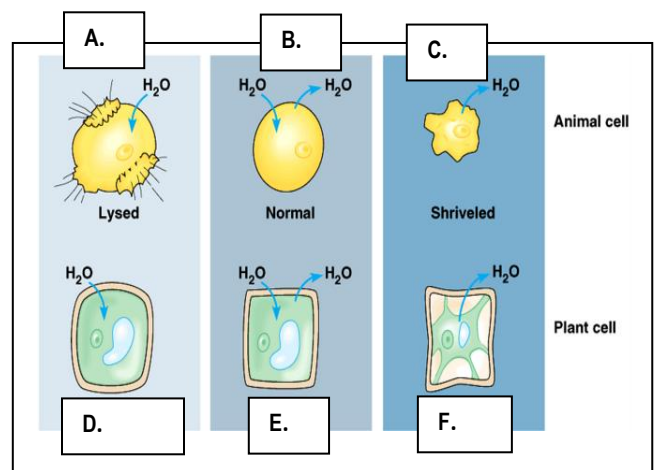
contractile vacuole

tonicity

osmotic pressure

Using the picture to the right answer the following questions

1. Which figure depicts a cell in a solution hypotonic to the cell?
2. Which figure depicts a cell placed in a solution hypertonic to the cell?
3. Which figure depicts an animal cell in an isotonic solution?
4. The solution for A and D are hypotonic, hypertonic or isotonic to the cell?
5. The solution for B and E are hypotonic, hypertonic or isotonic to the cell?
6. The solution for C and F are hypotonic, hypertonic or isotonic to the cell?



### 4.3 Facilitated Diffusion

facilitated diffusion

transport proteins

channel proteins

#### **4.4 Active Transport**

active transport

homeostasis

#### **4.5 Sodium-Potassium Pump**

Sodium-potassium pump system

nerve cells

#### **4.6 Exocytosis and Endocytosis**

endocytosis

phagocytosis

pinocytosis

exocytosis

### **Chapter 5 – Cell Biology 3: Making Food and Energy for Cells: Photosynthesis**

#### **5.1 Autotrophs and Heterotrophs**

inorganic

chloroplast and 5.3

cellular respiration

how does it differ from photosynthesis?

who undergoes cellular respiration?

equation for photosynthesis

heterotroph

photosynthesis – what organisms photosynthesize

autotrophs/producer

food chain

#### **5.2 Glucose and ATP**

ATP

NADPH and 5.4

ADP

energy

glucose

chlorophyll

### 5.3 Chloroplasts

Use the diagram to the left to answer the following questions:

The name of this organelle is \_\_\_\_\_

Is this organelle found in an eukaryotic cell or a prokaryotic cell?

Is this organelle found in an animal or plant cell?

Name:

A

B

C

E

What is the function of?

A

B

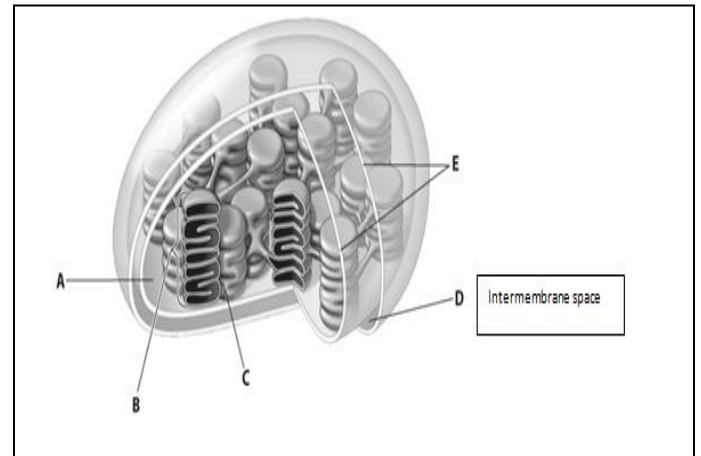
C

Electron transport chain

### 5.4 Light Reactions of Photosynthesis

Light Reaction

Where does it occur?



What are the reactants?

What are the products?

ATP synthase

photolysis

How are electrons carried to the Calvin Cycle?

## **5.5 Calvin Cycle**

Calvin cycle

Where does it occur?

What are the reactants?

What are the products?

carbon fixation

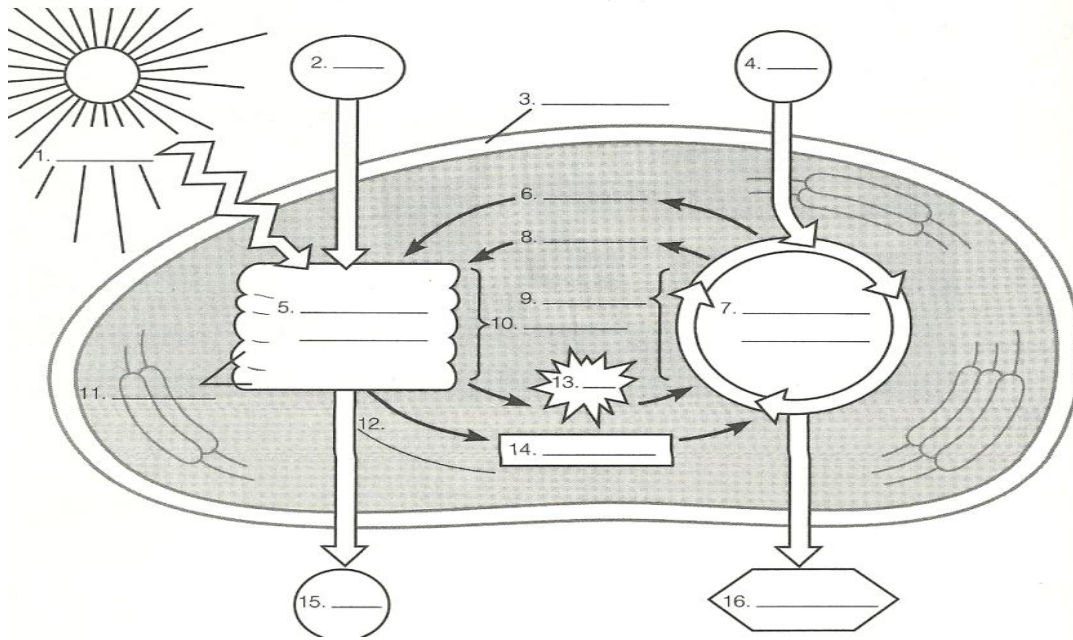
stoma (stomata)

## **5.6 Photosynthesis Summary**

Photosynthesis and Cellular Respiration

Storage products of photosynthesis

Label the diagram



## Chapter 6 Cell Biology 4: Cellular Respiration

### 6.1 Aerobic vs. Anaerobic Respiration

aerobic respiration

anaerobic respiration

### 6.2 Cellular Respiration

ATP

pyruvate

Three stages of cellular respiration

### 6.3 Glycolysis

glycolysis

pyruvate

NADH

Total ATP produced

### 6.4 Krebs Cycle

Krebs Cycle

Citric Acid Cycle

carbon dioxide

FADH<sub>2</sub>

total ATP produced

matrix

### 6.5 Electron Transport

electron transport chain

ATP Synthase

total ATP produced

inner membrane

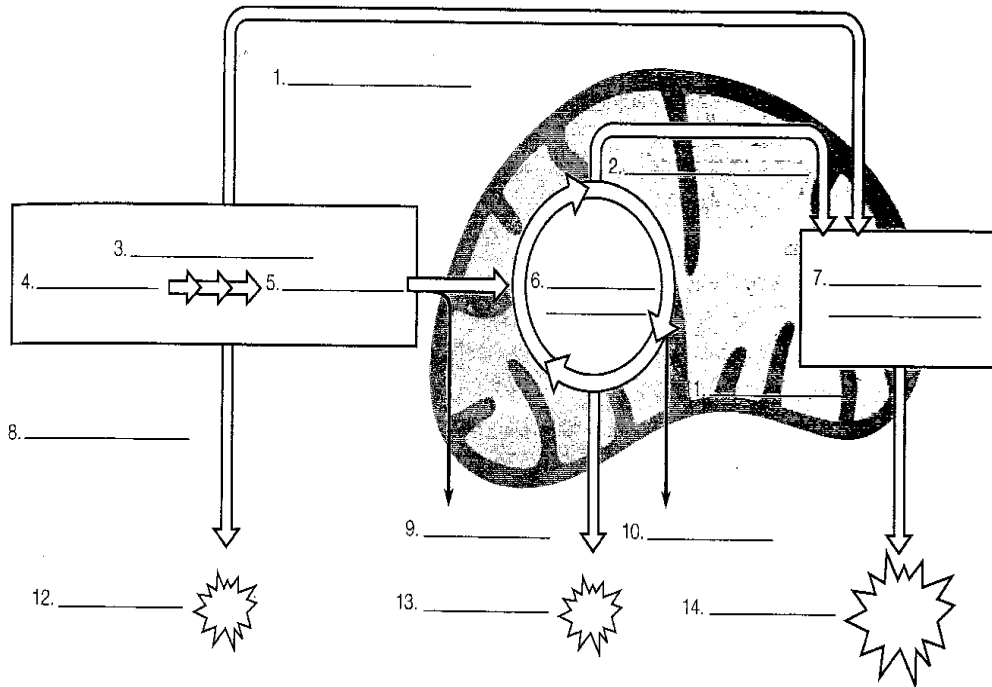
### 6.6 Fermentation

fermentation of alcohol

yeast

Fermentation of Lactic Acid

Label the diagram:





	<b>Cellular Respiration</b>	<b>Aerobic or Anaerobic</b>
Function		
Organelle		
Reactants		
Products		
Production of ATP		
Equation		
Number of Steps		
Name of Step 1		
Step 1 Reactants		
Step 1 Products		
Location of Step 1		
Name of Step 2		
Step 2 Reactants		
Step 2 Products		
Location of Step 2		
Name of Step 3		
Step 3 Reactants		
Step 3 Products		
Location of Step 3		