# Biology I (Davidkumar) Students

Name	Date	Class
	<b>D</b> ate	

A 4		ictice
CONTO	nt Prs	ICTICA

**LESSON 2** 

## Levels of Organization

carry out a specific task

**Directions:** On the line before each definition, write the letter of the term that matches it correctly. Each term is used only once.

- 1. a cell that can become many different cell types
  - 2. a group of similar cells that work together to
  - 3. a group of different organs that work together to complete a series of tasks
  - **4.** the process by which cells becomes different types of cells
  - **5.** a group of organ systems that carry out all the jobs needed for their survival
- **6.** a group of different tissues working together to perform a particular job

A. cell differentiation

B. stem cell

C. tissue

D. organ

E. organ system

F. organism

Directions: Circle the term in parentheses that correctly completes each sentence.

- 7. Cells work together in a (multicellular/unicellular) organism.
- **8.** A cell in a (multicellular/unicellular) organism must carry out all the activities that are necessary to survive.
- **9.** Different types of cells in a multicellular organism have (different/the same) chromosomes.
- 10. Most multicellular organisms are (eukaryotes/prokaryotes).

			Date _	<del></del>	Class
Kev C	oncent B	uilder anization			LESSON
			ion lead to the organiza	tion within a	
			the levels of organization f		t. Then
celi	organ	organism	organ system	tissue	
Definition:		<del>-</del>			
				<del></del>	<del></del>
2					
Definition:	·				
		<del></del>			
<b>).</b>					
					· <del></del>
·					
efinition:	- <u></u> -				

Copyright & Opensor-McChrus-Vill, a division of The McChrus-Fill Companies, Inc.

#### Macromolecule Worksheet

Polymer:				<u> </u>
. Complete the cha	rt below.			
ORGANIC MOLECULES	CARBOHYDRATES	LIPIDS	PROTEINS	NUCLEIC ACIDS
Monomer				
Polymer				
Function				
Elements				
Examples				
What is the	rings are in a monosacchari most common monosaccha storage polysaccharide in p	ride?		echaride?
Are carbohy	ydrates soluble in water? oluble in water?	Yes No Yes No		
What two fu	nctions do nucleic acids ha	ve?		
	three parts that make up a			
_1)		2)	3)	1777 - FL. 18 - TABLE - LAN LAN
What are the	two types of sugars found	in nucleic acids?		

Biolo:	gy
--------	----

Name:	 	-
Date: _	 ·	
Period:		

## **Cell Organelles Worksheet**

Complete the following table by writing the name of the cell part or organelle in the right hand column that matches the structure/function in the left hand column. A cell part may be used more than once.

Structure/Function	Cell Part
1. Stores material within the cell	<u>.</u>
2. Closely stacked, flattened sacs (plants only)	
3. The sites of protein synthesis	·
4. Transports materials within the cell	
5. The region inside the cell except for the nucleus	_
6. Organelle that manages or controls all the cell functions in a eukaryotic cell	<del></del>
7. Contains chlorophyll, a green pigment that traps energy from sunlight and gives plants their green color	
8. Digests excess or worn-out cell parts, food particles and invading viruses or bacteria	
9. Small bumps located on portions of the endoplasmic reticulum	
10. Provides temporary storage of food, enzymes and waste products	<del></del> -
11. Firm, protective structure that gives the cell its shape in plants, fungi, most bacteria and some protests	
12. Produces a usable form of energy for the cell	
13. Packages proteins for transport out of the cell	
14. Everything inside the cell including the nucleus	
15. Site where ribosomes are made	<del>-</del>

16. The membrane surrounding the cell	
17. Provides support for the cell, has two "subparts"	
18. Name for the collection of DNA in the nucleus of eukaryotic cells	
19. Consist of hollow tubes which provide support for the cell	
20. Small hair-like structures used for movement or sensing things	
21. Composed of a phospholipid bilayer	
22. Longer whip-like structures used for movement	

Put each of the following organelles into one of the four columns, based on their role in metabolism.

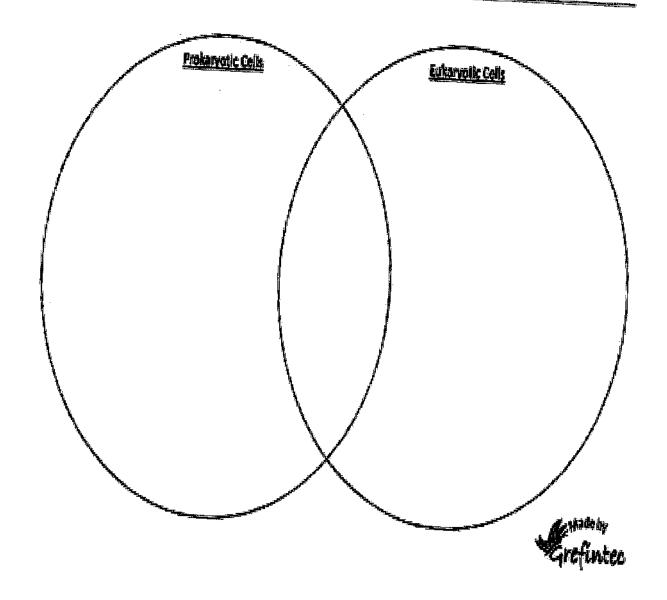
Lysosomes	<u>Mitochondria</u>	Plasma membrane	Vacuoles
Ingestion	Digestion	Respiration	Excretion

Put a check in the appropriate column(s) to indicate whether the following organelles are found in plant cells, animal cells or both.

Organelle	Plant Cells	Animal Cells
Cell Wall		
Vesicle	-	_
Chloroplast		
Chromatin		_
Cytoplasm	_	
Cytoskeleton		***
Endoplasmic reticulum		
Golgi apparatus		
Lysosome		

Organelle	Plant Cells	Animal Cells
Mitochondria		
Nucleolus		
Nucleus		
Plasma membrane		
Central vacuole		
Ribosome		
Vacuole		

# Make a Venn Diagram Comparing Prokaryotic and Eukaryotic Cells



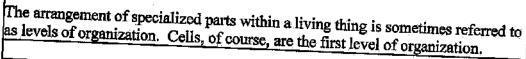
Draw the structure of cell membrane and label the parts. Color it

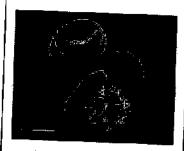
Name:	
Date:	Hour:

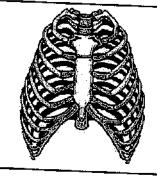
# **Multi-Cellular Organization Reading**

CELLS: LEVEL ONE

Within a multi-cellular organism there is a division of labor. Division of labor means that the work of keeping the organism alive is divided among the different parts of the body. Each part has a specific job to do. And as each part does its special job, it works in harmony with all the other parts.







#### TISSUES: LEVEL TWO

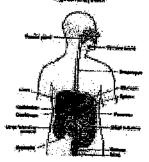
In any multi-cellular organism, cells rarely work alone. Cells that are similar in structure and function are usually joined together to form tissues. Tissues are the second level of organization.

Bone cells in your body form bone tissue, a strong solid tissue that gives you shape and support. Blood cells in your body are part of blood tissue, a liquid tissue responsible for transporting food and oxygen throughout the body.

ORGANS: LEVEL THREE

Tissues are further organized in organs, the third level of organization in living things. Organs are groups of different tissues that work together. Your heart, for example, is an organ made up of muscle tissue, blood tissue, and nerve tissue. You are probably familiar with the names of many of the body organs. The brain, stomach, kidneys, and skin are some examples.





#### ORGAN SYSTEMS: LEVEL FOUR

Like cells and tissues, organs seldom work alone. They "cooperate" with one another and form specific organ systems. Organ systems are the fourth level of organization in living things. An organ system is a group of organs working together to perform a specific function for the organism.

ORGANISMS: LEVEL FIVE

You are an organism. Dogs, trees, and butter cups are also organisms. Even a unicellular bacterium is an organism. An organism is an entire living thing that carries our all the basic life functions. The organism is the fifth level of organization.

Cells, tissues, organs, organ systems organisms—each level of organization interacts with every other level. The smooth functioning of a complex organism is the result of all it various parts working together.



Name:	
Date:	Hour:

# Levels of Organization

Cells: Level One	
Within a multi-cellular organism there	is a
Division of labor means that the work	of keeping the organism alive is divided among the
different parts of the body. Each part	has ajob to do.
The arrangement of specialized parts v	vithin a living this is sometimes referred to as
	Cells of course, are the
level of organizatio	n.
Tissues: Level Two	
In any multi-cellular organism,	rarely work alone. Cells that are
	d function are usually joined together to form
	level of organization.
Bone cells in your body form bone tiss	ue. Blood cells in your body form blood tissue.
Organs: Level Three	
	, thelevel of
organization in living things. Organs a	re groups of different tissues that work together. Your
heart, for example, is made up of	tissue,tissue, and
tissue. You are no	bably familiar with the names of many of the body
organs. The brain	leiden and desired the body
examples.	, kidneys, and are some
Organ Systems: Level Four	
like cells and tissues, organs seldom wo	ork They "cooperate" with one
	Organ systems are the
level of organization	n in living things. An organ system is a
	ogether to perform a specific function for the assession

	Name:	
	Date:	Hour:
An example would be your digestive system. esophagus, stomach, and intestines.	It is made up of several organs	s such as your
Organisms: Level Five		
are an organism. Dogs, trees and	d buttercups are also organisms	. Even a unicellular
(one celled) bacterium is an organism. An org		
that carries out all the bas	sic life functions. The organism	n is the
level of organization.	J	
→ tissues → organs →	<del> </del>	**m
each level of organization interacts with every	other level. The smooth funct	ioning of a complex
is the result of all its v		together

.

#### **Photosynthesis Review Worksheet**

Part A. Match the terms below with the correct description

the leaf?

		HILE COLLECT GES	<del>_ '</del>	
Calvin Cycle	Chloroplast		Light reactions	Thylakoid
Chlorophyli	Photon	Photosynthesi	Dark reactions	
		8		
a	F	packet of solar en	ergy	
b. water.	pc	ortion of photosyr	thesis that uses sunlight to breal	k apart
c. photosynthesis	gı	reen pigment tha	t absorbs solar energy and is imp	ortant in
d	m	embrane-bound	ed organelle containing chlorophy	yll
e. reactions occur	cl	nloroplast part wi	nere sunlight is absorbed and the	light
f. glucose.	Re	eactions of photo	synthesis that do not use sunligh	t and make
g. photosynthesis	cy in plants	cle that produces	s glucose during the dark reaction	ns of
perform			eterotrophs in terms of whether t	heir cells
photosynthe	sis and / or cel	lular respiration.		
chemical bond that			adenosine and the phosphate g	roups,
would be bit	oken it energy i	needed to be rele	eased.	
3. Draw a diagram of chloroplast and label the following: chloroplast membrane, thylakoid, granum (grana), stroma and location of pigments.				
to lose their			e chloroplasts in leaves causing	the leaves
green color in fall?  5. Write the chemical equation for the process of photosynthesis.				
3. When a leaf turns from red to brown in fall what two pigments may have been removed from				

- 7. Explain how temperature, intensity of light, CO<sub>2</sub> levels and Light Color effect the rates of photosynthesis?
- 8. Where does the Carbon Dioxide used in photosynthesis come from? What happens to it in photosynthesis?
- 9. Where do the Light reactions and Dark Reactions occur in a chloroplast? Why might they need to occur in different places?

10. Match the photopigment with it♦s color.

Pigment name	Color it appears	
- Chlavanhadi	I. Direction	
Chlorophyll	A. Blue	
Xanthophyll	B. Green	
Carotenoids	C. Orange	
Flavonoids	D. Brown	

11. Relate the structure of a chloroplast to the reactions that occur in them.

#### Cellular Respiration Worksheet

1		ik down molecules, energy is		1.5.4.1
and c	a. stored as ADP.	b. released as neat.	c. stored as ATP.	d. Both
2		the most ATP is made during		d Oakta
Cycle	a. glycolysis.	b. lactic acid fermentation.	c. the Krebs cycle.	d. Calvin
3		gars to produce ATP and eth		
photos	a. cellular respiration synthesis	b. alcoholic fermentation	c. lactic-acid fermentation	on d.

4	Which of the following a. CO2		ne Cellular Respiration c. Oxygen	
5	Which of the following		r respiration?	
cycle		•		-,
6above	With enough oxygen pages. With enough oxygen pages. With enough oxygen pages.	oresent which of the fol b. fermentation		
7	An important molecule a. ATP			ermentation is d. NAD+
8absent		b. only if oxygen is pre	esent c. in all cells	d. only if oxygen is
9 glycoly		cohol and CO2 in the p tion b. alcoholic ferm		respiration d.
10	Glycolysis takes pla a. cytoplasm	ce in the b. mitochondria	_ c. chloroplast	d. nucleus
11	_ Aerobic Respiration a. 2	produces molecu b. 19	les of ATP. c. 34	<b>d</b> . 63
12	_Aerobic processes re a. sunlight	quire in order to b. water		d. carbon dioxide
13	_To maximize ATP pro a. fermentation	oduction, glycolysis mu b. aerobic respiration		d. photosynthesis
14 happer	_`When muscles are e ns?	xercised extensively in	the absence of sufficient	ent oxygen, what
respira	a. lactic acid is produc	ced b. ethanol is produ	tced c. glucose	d. oxidative
15. Wh		tore sugars in? b. Liver and muscles	c. stomach and inte	stines d. brain
16. Th	e light color reflected th	nat things that we see a	ıs green colored.	
15. Wr	ite the overall reaction	for cellular respiration.		

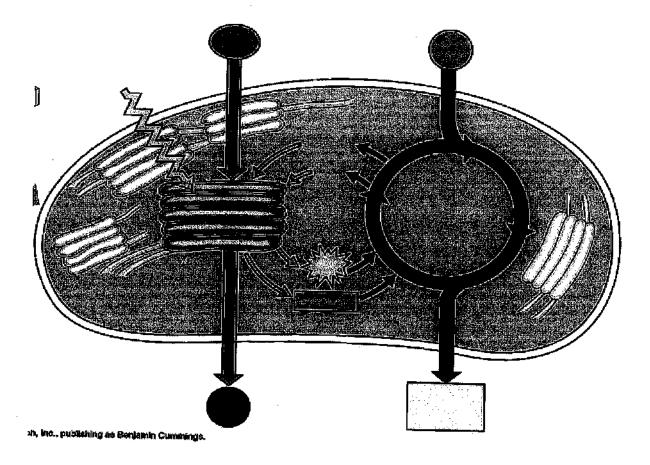
- 16. What are the 3 phases of the cellular respiration process?
- 17. How do Photosynthesis and Aerobic Cellular Respiration support each other?
- 18. Draw and label a diagram of a mitochondria including the outer membrane, cristae and the
- 19. Relate the structure of a mitochondria to the reactions that it performs.

Nan		Date	Period
	Photosynthesi	is: Making Energ	7 Y
Disas	<u>Chloroplasts</u>		Plant Call Chiosophaet
Chica	osynthesis is a process in which sunlight energies. The site of photosynthesis	gy is used to make	Outer
J	priorosynthesis is in the alleg		
	The main fund	tions - E	Mentioratus
•	Gigouse) Cultifu Dinothesia a	و مدا مدا	
most	gy. Chloroplasts contain the pigment, chloroph of the colors in the color approximation	y/l. Chlorophyll absorbs	
yellov	of the colors in the color spectrum, and refleve wavelengths of light. This is why we see leaves these colors are reflected to	cts only green and	Thyana.
becau	ise these colors are reflected into our eyes.	es as green or yellow -	Internerabra Special Granum (Strant of Thylakolde)
1.	What is photosynthesis?		
2.	Where does photosynthesis occur?		
3.	What are chloroplasts and where are they fo	ound?	
4.	What are the two main functions of chlorenia		
5.	Why doe most leaves appear green?  What is the primary pigment found in the chi		
0.	What is the primary pigment found in the chl	oroplast?	
	Photosynthesis		
ziucose Idina +l	e is another name for sugar. The molecular for the energy from sunlight to transform CO. from	rmula for glucose is CaH12O4	Plante make average
This or	ne energy from sunlight to transform CO2 fro ocess, called photosynthesis occurs in the chi	m the air with water from th	Te ground into alucase
Xvaen	ocess, called photosynthesis occurs in the chl (O2) is created as a waste product and is rele	oroplast of the plant cell. Du	ring this process
hotosy	(O <sub>2</sub> ) is created as a waste product and is rele inthesis is:	ased into the air for us to b	reath. The formula for
,	(reactants)		
	CO2 + H2O + sunlight	(products)	
his for	mula says that <u>carbon dioxide</u> + <u>water</u> molecu <u>sugar</u> and <u>oxygen</u> . The reactants in photograph	les are combined with the	_
roduce	sugar and oxygen. The reactants in photosynt is water from the ground through its mosts. T	thesis (what is used) are co	ergy from <u>sunlight</u> to
ant ge	ts water from the ground through its roots. Tarbon dioxide comes from living organisms the	he plant collects carbon dies	water and sun. The
The co	arbon dioxide comes from living organisms the tory smokestacks and car fumes	at exhale (breath it out) it it	side from the air. Much
om tac	tory smokestacks and car fumes.	Constant outy 11, E	rui some also comes
7. W	hat is the formula for photosynthesis?hat three things are used to make alucase in		
8 14	hat three things are used to make glucose in		

Name		Date	Period
9. Where does the water	come from?		
10. Where does the water	enter the plant?		
11. Name 3 some sources	of CO2.		
	loes the plant use to convert		
The products are glucose and We also use this glucose by e Photosynthesis is essential fo considered autotrophs becaus	ating plants. The oxygen prod or all life on earth, because it	uced is released into provides food and o	the air for us to breath. Kygen. Plants are
	notosynthesis?		·
14. What is the alucose us	ed for?		, <u>, , , , , , , , , , , , , , , , , , ,</u>
15. What is the oxygen us	ed for?	<u></u>	··-
Photosynthesis in pictures	e reaction by using picture  Photosynthesis in words		
Thorosynthesis in pictures	rnorosynthesis in words	Photosynthesis in	Symbols
CLOROPLAST  CO2  SUGAR  WATER  OXYGEN	Carbon dioxide and water combine with sunlight to create oxygen and glucose.	CO + H₂O + sui	nlight $\rightarrow C_6H_{12}O_6+O_2$
	ribe, using scientific terms, mical equation to photosynth		

Name\_\_\_\_\_ Date\_\_\_\_\_ Period\_\_\_\_

Label the diagram below to summarize the two stages of photosynthesis.



Differentiate Aerobic and Anaerobic respiration. ( Any six differences)

T- Chart		

Draw a labeled diagram. Color it.

Mitochondria



Name	Period	Date Given	Due Date
		200 317011	Duc Date

#### **Mitosis Verses Meiosis**

Directions: Write answers next to the question. Draw pictures on the back of this page, in order. 1. Describe the purpose of mitosis \_\_\_\_\_ 2. How many times does the cell divide during mitosis? 3. What kind of cells are produced at the end of mitosis? 4. What are sister chromatids? 5. Briefly describe what happens during prophase 6. Draw and label picture of what a cell looks like during prophase. Draw on the back of page. Briefly describe what happens during metaphase \_\_\_\_ 8. Draw and label a picture of what a cell looks like during metaphase. Draw on the back of page. 9. Briefly describe what happens during anaphase 10. Draw and label a picture of what a cell looks like during anaphase. Draw on the back of page. 11. Briefly describe what happens during telophase 12. Draw and label a picture of what a cell looks like during telophase. Draw on the back of page. 13. Is cytokinesis part of mitosis 14. Briefly describe what happens during cytokinesis 15. Draw a picture of what a cell looks like during cytokinesis. Draw on the back of page. 16. Describe the purpose of meiosis \_\_\_\_\_ 17. How many times does the cell divide during Meiosis? 18. What kind of cells are produced at the end of meiosis? 19. Briefly describe the difference of prophase I & II. 20. Draw and label a picture of prophase I & II. Draw on the back of page. 21. Briefly describe the difference of metaphase I & II. 22. Draw and label a picture of metaphase I & II. Draw on the back of page. 23. Briefly describe the difference of anaphase I & II. 24. Draw and label a picture of anaphase I & II. Draw on the back of page. 25. Briefly describe the difference of telophase I & П. 26. Draw and label a picture of telophase I & II. Draw on the back of page.

27. What would happen to cell division if a chemical was put in the cell that did not allow for cell division to occur?

Name	Period	Date Given_	Due Date
Mitosis		Meiosis I	Meiosis II
Prophase		Prophase I	Prophase II
Metaphase		Metaphase I	Metaphase II
Anaphase		Anaphase I	Anaphase II
Telophase		Telophase I	Telophase II
Cytokinesis		Cytokinesis	Cytokinesis
www.cstephenmurray.com/dnewsom			Copyright 2008, Denece R. Newsom

Name	Date	Period
------	------	--------

Section 4	and the second s	
Word	Definition	Picture
Phenotype		
Canahina		
Genotype		
		·
Homozygous		
. "		
Heterozygous		
Heredity		
, ,		
Trait		
i i cait		

Name	Date	Period

Significant .	angers.	
Word	Definition	Picture
Genetics		
Gene		
Alleles		
VIIGIES		
Dominant Allele		
Recessive Allele		
Hybrid		
-		

Name	Date	Period	

Sections 2.5 and		
Word	Definition	Picture
Probability	· · · · · · · · · · · · · · · · · · ·	
Punnett Square		
T attition adda.		
Codominance		
Sexual		
Reproduction		
Diploid		
:		
	,	

Name	Date	Period
------	------	--------

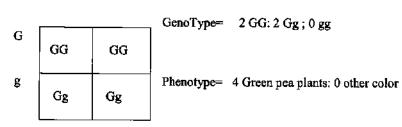
Word	Definition	Picture
Meiosis		
Messenger RNA		
Transfer RNA		
Mutation		

Punnett square worksheet

Complete	the following monohybrid crosses: draw a Punnett square, list the ratio and describe the
offspring.	Be sure to remember that the capital letter is dominant.

Exam	nΙ	e`
TANHALL	μı	-

A green pea plant (GG) is being crossed with a green pea plant (Gg).  $G \qquad \qquad G \label{eq:GG}$ 



1) A green pea plant (Gg) is crossed with a yellow pea plant (gg).

L	

2) A tall plant (TT) is crossed with a tall plant (Tt).



3) A tall plant (Tt) is crossed with a short plant (tt).



4) A red flower (Rr) is crossed with a white flower (rr).



5) A white flower (rr) is crossed with a white flower (rr).



6) A black chicken (BB) is crossed with a black chicken (BB).



## Punnett square problems continued

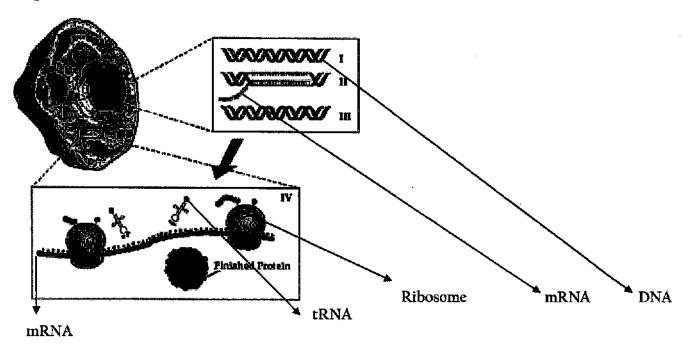
Complete the following problems. List the parent genotypes, draw and fill in a Punnett square, and then list the offspring genotypes and phenotypes.

<ol> <li>A homozygous dominant brown mouse is crossed with a heterozygous brown mouse (tan is the recessive color).</li> </ol>
2. Two heterozygous white (brown fur is recessive) rabbits are crossed.
3. Two heterozygous red flourers (-1): 2
3. Two heterozygous red flowers (white flowers are recessive) are crossed.
4. A homozygous tall plant is crossed with a heterozygous tall plant (short is the recessive size).
5. A heterozygous white rabbit is crossed with a homozygous black rabbit.

#### PROTEIN SYNTHESIS WORKSHEET

#### PART A. Read the following:

Protein synthesis is the process used by the body to make proteins. The first step of protein synthesis is called Transcription. It occurs in the nucleus. During transcription, mRNA transcribes (copies) DNA. DNA is "unzipped" and the mRNA strand copies a strand of DNA. Once it does this, mRNA leaves the nucleus and goes into the cytoplasm. mRNA will then attach itself to a ribosome. The strand of mRNA is then read in order to make protein. They are read 3 bases at a time. These bases are called codons. tRNA is the fetching puppy. It brings the amino acids to the ribosome to help make the protein. The 3 bases on tRNA are called anti-codons. Remember, amino acids are the building blocks for protein. On the mRNA strand, there are start and stop codons. Your body knows where to start and stop making certain proteins. Just like when we read a sentence, we know when to start reading by the capitalized word and when to stop by the period.



PART B. Answer the following questions on your paper:

1.	What is the first step of protein synthesis?
2.	What is the second step of protein synthesis?
3.	Where does the first step of protein synthesis occur?
4.	Where does the second step of protein synthesis occur?
5.	Nitrogen bases are read bases at a time.
6.	The bases on the mRNA strand are called
7.	The bases on tRNA are called
8.	What is the start codon?
9.	What are the stop codons? (Use your mRNA chart or pg. 298)
10.	A bunch of amino acids attached together is called a

## ONLY start on AUG and STOP when it tells you to stop. Follow example below: Example: DNA → AGA CGG TAC CTC CGG TGG GTG CTT GTC TGT ATC CTT CTC AGT ATC mRNA → UCU GCC AUG GAG GCC ACC CAC GAA CAG ACA UAG GAA GAG UCA UAG protein → start - glu - ala -thre - hist - asp -glu - threo - stop DNA → CCT CTT TAC ACA CGG AGG GTA CGC TAT TCT ATG ATT ACA CGG TTG CGA TCC ATA ATC mRNA → protein → 2. DNA → AGA ACA TAA TAC CTC TTA ACA CTC TAA AGA CCA GCA CTC CGA TGA ACT GGA GCA mRNA -> protein → DNA → TAC CTT GGG GAA TAT ACA CGC TGG CTT CGA TGA ATC CGT ACG GTA CTC GCC ATC mRNA → protein → DNA → TAA ACT CGG TAC CTA GCT TAG ATC TAA TTA CCC ATC mRNA → protein -> DNA → CTA TTA CGA TAC TAG AGC GAA TAG AAA CTT ATC ATC mRNA → protein → 6. DNA → TAC CTT AGT TAT CCA TTG ACT CGA ATT GTG CGC TTG CTG ATC $mRNA \rightarrow$ protein → 7. DNA → ACC CGA TAC CTC TCT TAT AGC ATT ACA AAC CTC CGA GCG mRNA → protein → 8. DNA → TAC AGA CGG CAA CTC TGG GTG CTT TGT TCT CTC AGT ATC

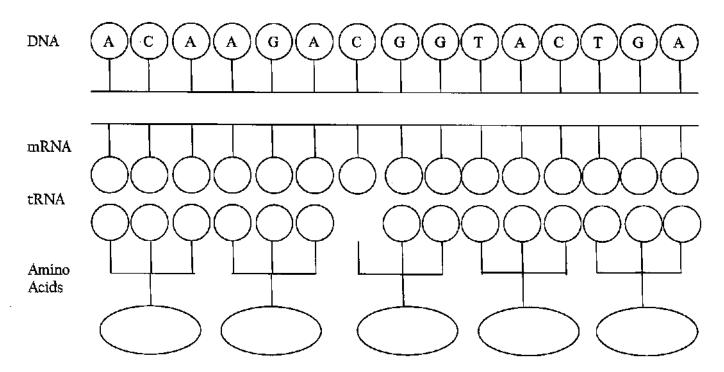
mRNA →

protein 🔿

#### Circle the correct choice within the parenthesis for 1-18.

- L (DNA/RNA) can leave the nucleus.
- 2. mRNA is made during (transcription/translation).
- 3. mRNA is made in the (cytoplasm/nucleus).
- 4. DNA is located in the (nucleus/cytoplasm)
- 5. (Translation/Transcription) converts DNA into mRNA.
- 6. (mRNA/rRNA) is used to carry the genetic code from DNA to the ribosomes.
- 7. (tRNA/rRNA) makes up the ribosome. Look in the book for this.
- 8. (DNA/RNA) uses uracil instead of thymine.
- 9. (RNA/amino) acids make up a protein.
- 11. Transcription takes place in the (nucleus/cytoplasm).
- 12. tRNA is used in (translation/transcription).
- 13. tRNA uses (anticodons/codons) to match to the mRNA.
- 14. Proteins are made at the (nucleus/ribosome).
- 15. (tRNA/mRNA) attaches the amino acids into a chain.
- 16. tRNA is found in the (nucleus/cytoplasm).
- 17. (Translation/Transcription) converts mRNA into a protein.
- 18. Translation takes place in the (cytoplasm/nucleus).

#### Fill the Diagram In



#### Thinking Questions

1. Draw a DNA nucleotide & an RNA nucleotide. Label each of the 3 major parts.

3. What is the point of DNA replication?	
4. When & where does replication occur?	
5. What is the point of transcription?	Where does it occur?
6. What are three nucleotides together called on mRNA? (ie: AC	
7. The mRNA codons can be used in a chart to find:	
8. What molecule contains an anti-codon?	During what process is it used?
10. Translation takes place in a	
11 and make up ribosomes.	
12. What is the point of translation?	
13. Transcription and translation together is the process of	·

#### NATURAL SELECTION AND ARTIFICIAL SELEXTION

NAME:	DATE: .	***************************************	PERIOD:
Difference between natural selection and artificial selection			
	T- CI	nart	
	<u></u>		

DRAW ONE EXAMPLE FOR NATURAL SELECTION- Color and label the diagram

DRAW ONE EXAMPLE FOR ARTIFICIAL SELECTION- Color and label the diagram

Show your work at the back of this page.

#### **EVOLUTION** Vocabulary Worksheet

Name:	Date:	Period:
Evolution		
Natural selection		
ratural sologion		
Charles Darwin		
Fitness		
Variability		
Inheritability		
Artificial selection		

Adaptation				
Structural adaptation				
Mimicry	,			
Camouflage		·	·	
Physiological adaptation				
Fossil record				
Homologous structures				

Analogous structures

Embryology			
Biochemistry			
Genotype			
Phenotype			
Gene pool			
Genetic drift			
Founder effect			

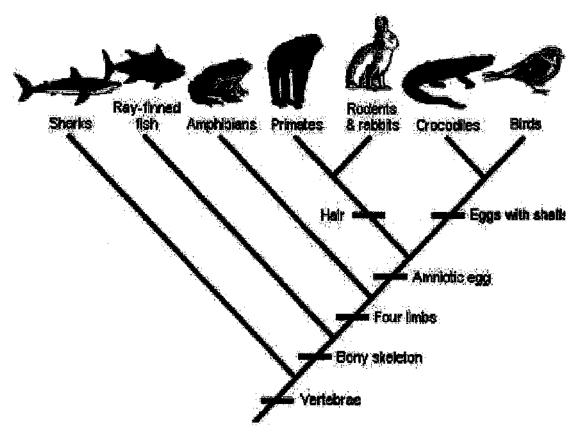
Vestigial structures

Bottleneck effect
Allele
Allele frequency
Stabilizing selection
Directional selection
Disruptive selection

## CLADOGRAM

N	AME: Date	e: Period:
1.	What trait separates Lampreys from tuna	_
O	n this cladogram?	
2.	What separates a salamander from a	Lancolet (outproup) Lamproy Tune Salamander Turille Leopard
	turtle?	
3.	Which organism is most related to the	FAUR WHEN 1971
	leopard?	
4.	What 4 traits do these two organisms	
	share?	<del>-</del>
5.	Which organism will have DNA most similar t	to the turtle?
6.	Which organism's DNA will differ the most fr	rom the leonard?

Directions: Use the cladogram below to answer the questions on the backside of this worksheet



7. What trait separates amphibians from primates on this cladogram?

8. What separates rabbits and primates from crocodiles on this	
cladogram?	
9. Which organism is most related to the bird on this	
cladogram?	
10. What 5 traits do these two organisms share?	
11. Which organism will have DNA most similar to the	
bird?	
12. Which organsism's DNA will differ the most from the bird?	

#### Read the following situations below and identify the 5 points of Darwin's natural selection.

1) There are 2 types of worms: worms that eat at night (nocturnal) and worms that eat during the



day (diurnal). The birds eat during the day and seem to be eating ONLY the diurnal worms. The nocturnal worms are in their burrows during this time. Each spring when the worms reproduce, they have about 500 babies but only 100 of these 500 ever become old enough to reproduce.

a. What worm has natural selection selected AGAINST? **Diurnal worm** FOR? **Nocturnal worms** 

b. Darwin's 5 points: Identify the 5 points in the scenario above.

Population has variations. Nocturnal and diurnal worms

Some variations are favorable. Nocturnal worms

More offspring are produced than survive. 100 out of 500 survive

Those that survive have favorable traits. nocturnal

A population will change over time. noctural worms

2) There are 3 types of polar bears: ones with thick coats, ones with thin coats and ones with medium coats. It is fall, soon to be winter. The temperatures are dropping rapidly and the bears must be kept warm, or they will freeze to death. Many of the bears have had ~2 cubs each but due to the extreme temperatures, many mothers only have one cub left.



a.	What bear will natural selection select AGAINST?	FOR?	
b.	Darwin's 5 points: Identify the 5 points in the scenario above.		
	Population has variations.		
	Some variations are favorable.		
	More offspring are produced than survive		
	Those that survive have favorable traits.		
	A population will change over time.		

	3) In ostriches, there are 2 types: ones that run fast and those that run slowly. The fast birds can reach up to 40 miles an hour. Jackals love to eat ostrich, and they can reach speeds of up to 35-40 miles per hour. A flock of ostrich will lay ~ 10 eggs (each mother only lays 1), but many rodents break into the eggs and eat the fetus before they hatch.
8	. What ostrich will natural selection select AGAINST? FOR? FOR?
	Darwin's 5 points: Identify the 5 points in the scenario above
	Population has variations
	bottle variations are tavorable
	3 Produced High Billalas
	destrict have have ravorable traits.
	A population will change over time.
4)	
a.	What rabbit will natural selection select AGAINST?FOR?
	Darwin's 5 points: Identify the 5 points in the scenario above.  Population has variations.
	Some variations are favorable.
	More offspring are produced than survive
	Those that survive have favorable traits.  A population will change over time
	A population will change over time.
5)	Bob believes that giraffes have long necks because they have stretched their necks to try and reach food that is high in trees. Since the parent had stretched its neck, it passed the long neck on to its offspring. Ryan believes that giraffes have long necks because the ones with long necks were able to reach the food, and those with short necks could not and died. The long necked giraffes reproduced, and soon all of the giraffes had long necks.  a. Who thinks like Lamarck?  b. Who thinks like Darwin?