Stamford Public Schools

Science Department

District Final Examination

REVIEW

2014-2015

Honors Biology

Student Name:_____

School/Teacher:_____

Date: _____

Stamford Public Schools
EXCELLENCE IS THE POINT.

Dear Biology Student,

The district-wide Honors Final Exam for the 2014-2015 school year will focus on the concepts covered in the yearlong biology course. You will have 90 minutes for this exam.

Enclosed is a list of the skills and concepts from your biology course. Next to each main topic is the number of problems that will appear on the Exam and also the way questions will be formatted (Constructed Response or Selected Response).

In addition to the concepts listed and the formatting of the questions, this packet also includes a sampling of the types of questions that will be on your Honors Biology Final Exam.

Please see your science teacher if you feel additional practice is necessary.

Wishing you success on your exam,

Carrie Chiappetta,
Director for Math and Science

Honors Biology Final Exam 2015

Blueprint and Study Guide

70 selected response questions – 1 point each

11 constructed response questions – 27 points total

97 points total

Topic	# of selected response questions (1 pt per question)	# of constructed response questions	points assigned to constructed response questions
Population Ecology: 5 points	**2 total**	**1 total**	**3 points**
Limits to population size	1		
Birth rate/death rate	1		
Interpreting human population pyramids		1	3
Chemistry of Life: 3 total	**3 total**	**0 total**	**0 points**
Enzyme structure and function	2		
Properties of water	1		
Structure and Function of Cells: 7 points	**7 total**	**0 total**	**0 total**
Homeostasis	1		
Eukaryotic v. prokaryotic cells	1		
Plant v. animal cells	1		
Structure and function of the parts of a eukaryotic cell	4		
Photosynthesis and Respiration: 7 points	**4 total**	**1 total**	**3 points**
Reactants and products of photosynthesis and/or respiration - General content - Electron transport chain	*2 total* 2 1	*1 total* 1	*3 points* 3
Fermentation	1		
DNA, Protein Synthesis and Biotechnology: 11 points	**5 total**	**2 total**	**6 points**
DNA/RNA structure & function	2		
Compare/contrast DNA & RNA		1	4
DNA replication	1		
Codons and the genetic code	1		
Recombinant DNA and genetic engineering - General content - Transgenic plants	*1 total* 1	*1 total* 1	*2 points* 2

Cell Division and Sexual Reproduction: 7 points	**7 total**	**0 total**	**0 points**
Stages of the cell cycle - General content - Stages of interphase - Stages of mitosis	*3 total* 1 1 1		
Crossing over	1		
Mutation	1		
Male v. female	1		
Meiosis	1		
Genetics: 14 points	**10 total**	**1 total**	**4 points**
Laws of segregation and independent assortment	1		
Phenotype and genotype	1		
Using Punnett squares	2		
Dominant v. recessive	1		
Using the principle of probability	3		
Blood type/multiple alleles		1	4
Pedigrees	1		
Karyotypes	1		
Evolution: 8 points	**6 total**	**1 total**	**2 points**
Darwin's theory of natural selection	3	1	2
Isolation and speciation	1		
Evolution and Genetics	2		
Diversity of the Biosphere: 4 points	**2 total**	**1 total**	**2 points**
Binomial nomenclature	1		
Hierarchical classification	1		
Phylogenetic trees		1	2
Microorganisms and the Immune System: 16 points	**14 total**	**1 total**	**2 points**
Viruses - Shape/structure - Function/mode of infection	*3 total* 2 1		
Bacteria - Shape/structure - Effect of antibiotics - Conjugation	*3 total* 1 1 1	*1 total* 1	*2 points* 2
Vaccines Disease transmission *Immune system* - Barrier defenses -Acquired immunity	1 2 *4 total* 2 2		
AIDS	1		

Ecology: 12 points	**10 total**	**2 total**	**2 points**
General content	1		
Impact of bacteria and fungi on humans	1		
Food webs	3		
Energy flow and matter cycling - General content - Trophic levels	*3 total* 2 1		
Succession	1		
Competitive exclusion	1		
STEM		2	2
Nature of science: 3 points	**0 total**	**1 total**	**3 points**
Experimental design		1	3
**Nature of science is also found in conjunction with questions throughout the assessment*			

Unit 1: The Nature of Science

You should be able to:

- Design experiments that test specific science questions
- Identify the independent/dependent variables and control if applicable
- Demonstrate a knowledge of common lab equipment and measurement units
- Write a reasonable hypothesis based on prior knowledge
- Read and interpret graphs, tables and diagrams
- Analyze data and observations to form reasonable conclusions
- Demonstrate an understanding of error related to the validity of data
- Apply mathematics to solving quantitative problems as applied to science
- Use common science language and vocabulary correctly
- Find logical connections between science concepts and applications in the real world.
- Evaluate information based on science practice
- Identify and emphasize interdisciplinary connections
- Explain how science understanding is challenged and developed through rigorous testing of concepts, theories and laws

On pages 6-32 you will find objectives and practice questions units 2-12. In addition, be sure to review all the lab work you have completed throughout the year.

Unit 2: Population Ecology

Objectives

A. Describe the exponential model of population growth and the factors that control it.

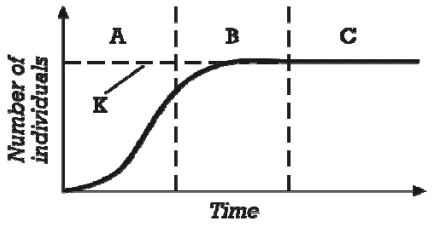
B. Describe the change in human population growth that began around 1650.

C. Compare the general standard of living in developed countries with that in developing countries.

D. Be able to identify developed and developing countries from population pyramids.

Practice Questions:

1. The graph below shows the growth of a population over time.



a. Describe the birth rate and death rate in region A _____
b. Describe the birth rate and death rate in region C _____

2. The current population growth rates of developed countries
   a. are lower than those of developing countries.
   b. are high because the death rate is low.
   c. are increasing because the fertility rate is increasing.
   d. are low because the death rate is high.

3. A country may have a negative growth rate if its
   a. population is mostly young people.
   b. birth rate is higher than its death rate.
   c. death rate is higher than its birth rate.
   d. population has access to health care.

4. What happens as a population nears carrying capacity?
   a. competition is no longer a factor
   b. resources naturally increase
   c. exponential growth occurs
   d. resources become limited

Unit 3: The Chemistry of Life

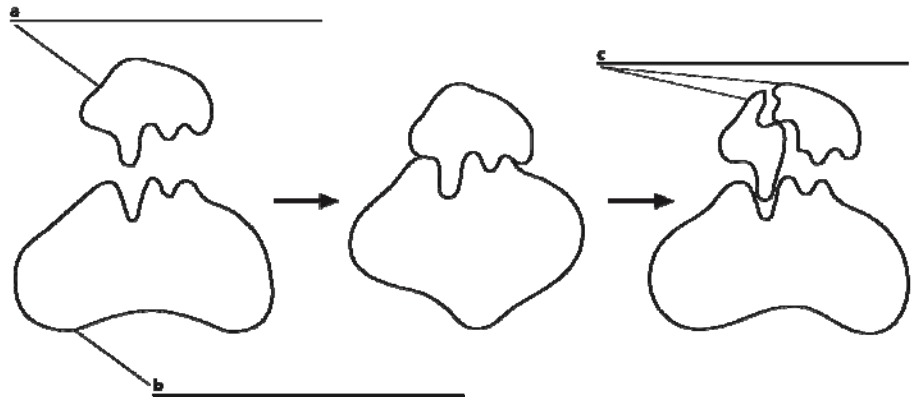
Objectives

A. Describe the structure of a water molecule. Identify which part of the molecule is (+) and which part of the molecule is (-)

B. Describe how enzymes affect chemical reactions in organisms. Explain the induced fit model of enzyme functioning.

Practice Questions:

1. The diagram below shows the interaction of an enzyme and it's substrate during a chemical reaction. Label the diagram and *explain* how the enzyme is functioning to help break down the substrate.

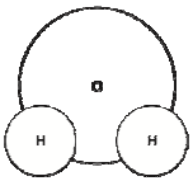


2. Most enzymes
   a. are changed by the reactions they catalyze.
   b. increase the activation energy of the reactions they catalyze.
   c. strengthen the chemical bonds in their substrate.
   d. are sensitive to changes in temperature or pH

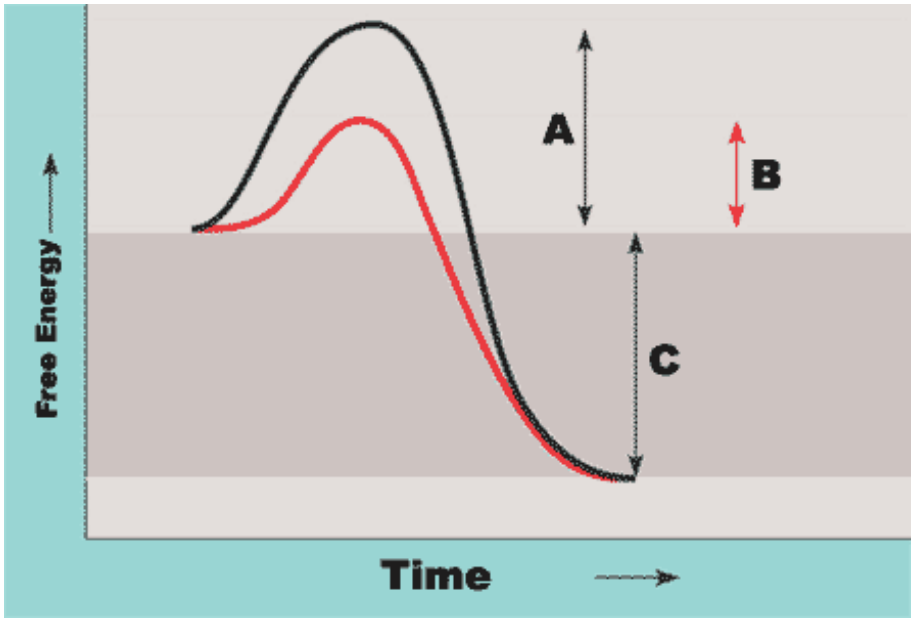
.

3. What two things allow an enzyme to work most efficiently?
   a. optimal temperature and optimal catalysts
   b. optimal temperature and optimal pH
   c. correct pH and correct substrates
   d. correct substrate and correct metabolism

4. The diagram below represents a single water molecule. Indicate what part of the molecule is slightly (+) and what part is slightly (-). Draw three other water molecules near it, and used dashed lines to indicate where hydrogen bonds would form between the molecule shown below and the ones you drew.



5. The graph below shows the change in energy of a catalyzed v. uncatalyzed chemical reaction.



a. Label A, B, and C.
b. Explain the data shown on the graph.

Unit 4: Structure and Function of Cells

Objectives

A. Distinguish between prokaryotes and eukaryotes.

B. Describe the structure, composition and function of the cell membrane.

C. Describe the structure and function of the major organelles found in a eukaryotic cell.

D. Compare and contrast plant and animal cells.

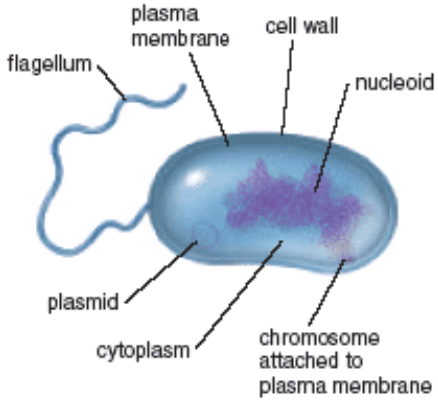
Practice Questions

1. One difference between eukaryotic and prokaryotic cells is that only
   a. prokaryotic cells are surrounded by a cell membrane.
   b. prokaryotic cells have a nucleus.
   c. eukaryotic cells have genetic information.
   d. eukaryotic cells have membrane-bound organelles.

2. Substances produced in a cell and exported outside of the cell would pass through the
   a. endoplasmic reticulum and Golgi apparatus
   b. mitochondria and Golgi apparatus.
   c. nucleus and lysosomes. Golgi apparatus.
   d. vacuoles and lysosomes

3. Which of the following organelles is found in plant cells but not in animal cells?
   a. nucleus b. chloroplast c. mitochondrion d. Golgi bodies

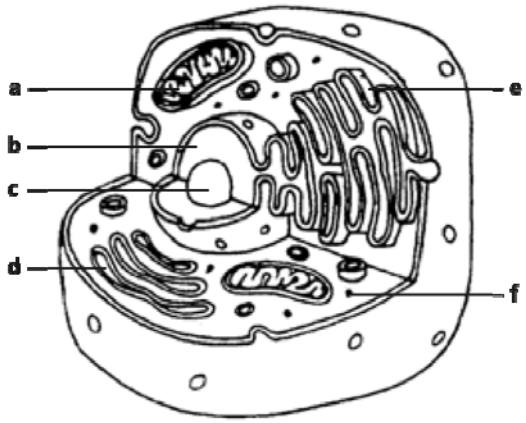
4. What type of cell is pictured, and how can you identify it?



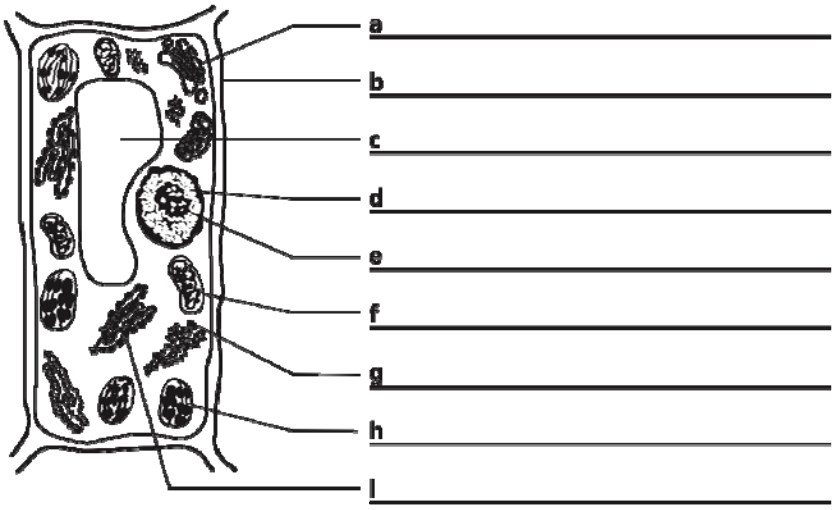
   a. It is a prokaryotic plant cell because it has a cell wall.
   b. It is a eukaryotic plant cell because it has a cell wall.
   c. It is a eukaryotic cell because it has a flagella.
   d. It is a prokaryotic cell because it has a nucleoid (region).

5. Which of the following is not a function of the Golgi apparatus?
   a. modifies proteins
   b. produces proteins
   c. organizes where proteins are sent
   d. packages proteins into vesicles

6. This diagram represents a typical animal cell. Label each part of the figure. Be sure you are able to indicate the function of each structure if asked.



7. The diagram below represents a typical plant cell. Label each part of the figure. Be sure you are able to indicate the function of each structure if asked.



Unit 5: Photosynthesis and Respiration

Objectives

A. Describe how usable energy is captured from sunlight by chloroplasts and is stored through the synthesis of sugar from carbon dioxide.

B. Explain how the mitochondria completes the breakdown of glucose to carbon dioxide, making stored chemical-bond energy available to cells.

Practice Questions

1. Glycolysis takes place
   a. in the cytosol.
   b. in the mitochondria.
   c. only if oxygen is present.
   d. only if oxygen is absent.

2. The Krebs cycle
   a. produces two molecules of CO_2.
   b. produces a 6-carbon molecule from 6 molecules of CO_2.
   c. produces NAD^+ from NADH and H^+.
   d. generates most of the ATP produced

3. What cellular process actually produces most of the ATP?
   a. absorption of light
   b. Krebs cycle
   c. fermentation
   d. electron transport chain

4. In cellular respiration, ___ gas is required and ___ gas is given off as a waste product.
   a. hydrogen, oxygen
   b. carbon dioxide, oxygen
   c. oxygen, carbon dioxide
   d. nitrogen, oxygen

5. The light reactions of photosynthesis convert visible light into what?
   a. chemical energy
   b. sugar
   c. oxygen
   d. carbon dioxide

6. Write the equations for cellular respiration and photosynthesis. Explain the equations in words.

Unit 6: DNA, Protein Synthesis, and Biotechnology

Objectives

A. Explain the principal function of DNA.

B. Describe the structure of DNA.

C. Explain the role of complementary base pairing in the replication of DNA.

D. Compare the structure of RNA with that of DNA.

E. Describe the structure and function of each type of RNA (mRNA, tRNA, rRNA)

F. Describe the genetic code.

H. Discuss the uses of genetic engineering in medicine.

I. Describe two ways genetic engineering has been used to improve crop plants.

Practice Questions

1. The primary function of DNA in cells is to
   a. serve as a storage form for unused nucleotides.
   b. occupy space in the nucleus to keep the nucleus from collapsing.
   c. store information that tells the cells which proteins to make.
   d. serve as a template for making long, spiral carbohydrates.

2. According to the base-pairing rules, guanine binds with
   a. cytosine. b. adenine. c. thymine. d. guanine.

3. Which of the following is NOT a correct structure of a nucleotide?
   a. adenine—deoxyribose—phosphate
   b. uracil—deoxyribose—phosphate
   c. cytosine—ribose—phosphate
   d. guanine—ribose—phosphate

4. The percentage of adenine in DNA is
   a. equal to the percentage of cytosine.
   b. equal to the percentage of thymine.
   c. not related to the percentage of thymine.
   d. equal to the percentage of guanine.

5. Which of the following distinguishes RNA from DNA?
   a. It stores genetic information.
   b. There are multiple type of RNA
   c. It is a nucleic acid.
   d. It is a biomolecule.

6. DNA technology is being used to develop crop plants that are
   a. less toxic to the pests that normally feed on them.
   b. more susceptible to herbicides.
   c. unable to fix nitrogen in the atmosphere.
   d. resistant to some diseases.

7. Scientists have inserted genes into rice plants that
   a. code for enzymes that cause rice to ripen quickly.
   b. increase the iron and beta-carotene levels.
   c. code for substances that cause allergies in people.
   d. increase the thickness of the seed coat.

8. Some people are concerned that genetically engineered crop plants could
   a. transmit their new genes to wild plant species, producing “super-weeds.”
   b. transmit their new genes to the animals that eat the plants, producing “super-animals.”

c. exchange genes with animals, producing plant-animal hybrids.
d. be wiped out by native plant species.

Unit 7: Cell Division and Sexual Reproduction

Objectives

A. Describe each phase of the cell cycle (Interphase and mitosis).

B. Summarize the phases of mitosis (PMAT)

C. Compare cytokinesis in animal cells with cytokinesis in plant cells.

D. List and describe the products of meiosis.

E. Compare the end products of mitosis with those of meiosis.

F. Explain crossing over and how it contributes to the production of unique individuals.

Practice Questions

1. Which of these is not a stage of the cell cycle?
   a. cytokinesis b. interphase c. mitosis d. photosynthesis

2. What typically results from one completed cell cycle?
   a. tissue b. dead cells c. new cells d. genomes

3. In eukaryotic cells, DNA is copied during a phase of the cell cycle called
   a. M phase. b. S phase. c. G1 phase. d. G2 phase.

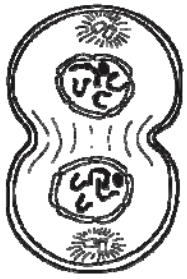
4. The cytoplasm of a eukaryotic cell divides by a process called
   a. mitosis. b. meiosis. c. replication. d. cytokinesis.

5. DNA replication takes place ___ during meiosis.
   a. once b. twice c. four times d. six times

6. Crossing over results in ___.
   a. the removal of genotypes from a zygote
   b. less genetic variation
   c. fewer combinations of genes
   d. greater genetic variation

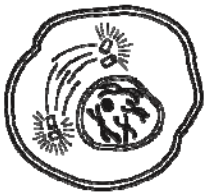
7. The major distinguishing characteristic of cancer is
   a. uncontrolled cell division. c. metastasis.
   b. production of viruses. d. tumor formation

8. Label each figure with the phase of mitosis that it represents. Summarize what is happening in each phase.



a_____

b_____



c_____

d_____

Unit 8: Genetics

Objectives

A. Distinguish between the dominant and recessive traits.

B. State two laws of heredity that were developed from Mendel's work. Be sure you can explain them.

C. Explain the difference between a gene and an allele.

D. Describe how Mendel's results can be explained by scientific knowledge of genes.

E. Use a Punnett square to predict the results of monohybrid and dihybrid crosses.

F. Differentiate between a monohybrid and dihybrid cross.

G. Be able to complete and interpret
- monohybrid crosses
- dihybrid crosses
- crosses with co-dominant alleles

H. Explain the role of sex chromosomes is sex determination.

I. Explain the effect of crossing over on the inheritance of genes in linkage groups

J. Be able to read, make, an analyze a pedigree

Practice Questions

1. When Mendel crossed a strain of tall pea plants with a strain of short pea plants, he observed that all of the plants in the F1 generation were tall. This suggests that
   a. the tall trait was controlled by a dominant factor.
   b. the short trait was controlled by a dominant factor.
   c. both traits were controlled by a recessive factor.
   d. the strain of short plants was not capable of pollinating the strain of tall plants.

2. A cross between true-breeding green-podded pea plants and true-breeding yellow-podded pea plants produces only green-podded plants. When the F1 generation is allowed to self- pollinate, the F2 generation consists of
   a. only green-podded plants.
   b. only yellow-podded plants.
   c. about ¾ yellow-podded plants and ¼ green-podded plants.
   d. about ¾ green-podded plants and ¼ yellow-podded plants.

3. The appearance of an organism is its
   a. genotype.
   b. phenotype.
   c. genotypic ratio.
   d. phenotypic ratio.

4. Since the ABO blood group alleles are co-dominant, an individual with the genotype I^AI^B will have blood type
   a. A. b. B. c. AB. d. O.

5. Which of these pertains to Mendel's law of independent assortment?
   a. observable characteristics of a trait
   b. separation of alleles during meiosis
   c. random distribution of alleles
   d. protein production

6. Which statement pertains to Mendel's law of segregation?
   a. Homozygous organisms are called hybrids.
   b. Two alleles for each trait separate during meiosis.
   c. Allele pairs are called a genotype.
   d. Dominant traits are visible.

7. A ___ is a segment of DNA whose sequence of nucleotides codes for a protein.
   a. gene b. chromosome c. karyotype d. characteristic

8. A ___ is a graphic display of chromosomes, arranged by size and shape.
   a. genotype b. phenotype c. monotype d. karyotype

9. In purple people eaters, one-horn is dominant and no horns is recessive. Draw a Punnett Square showing the cross of a purple people eater that is heterozygous for horns with a purple people eater that does not have horns. Summarize the genotypes & phenotypes of the possible offspring.

10. Blood typing:

a. The father of a child has type AB blood. The mother has type A. Which blood types can their children NOT have? _____

b. A woman with type A blood and a man with type B blood could potentially have offspring with what blood types? _____

c. The mother has type A blood. Her husband has type B blood. Their child has type O blood. The father claims the child can't be his. Is he right? _____

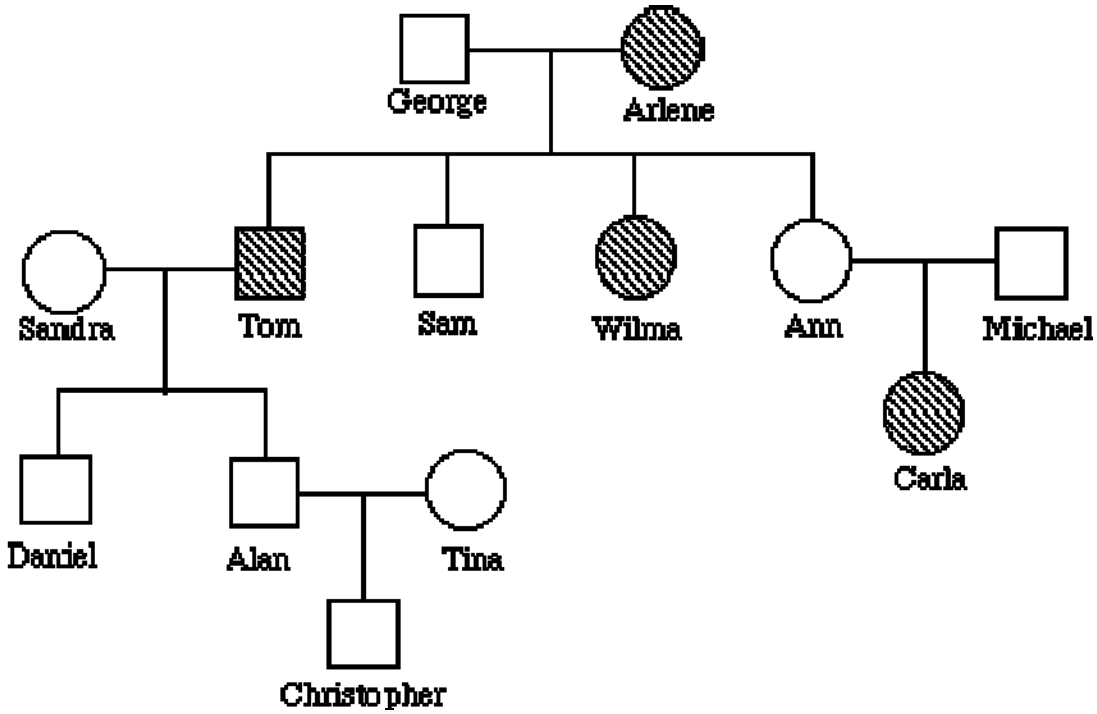
11. Pedigree practice

Tracing the path of an autosomal recessive trait

Trait: Falconi anemia
Forms of the trait:

- The **dominant** form is normal bone marrow function - in other words, no anemia.
- The **recessive** form is Falconi anemia. Individuals affected show slow growth, heart defects, possible bone marrow failure and a high rate of leukemia.

A **typical pedigree** for a family that carries Falconi anemia. Note that carriers are **not** indicated with half-colored shapes in this chart.



Analysis Questions.

To answer questions a-e, use the letter "f" to indicate the recessive Falconi anemia allele, and the letter "F" for the normal allele.

1. What is Arlene's genotype?_____

b. What is George's genotype?_____

c. What are Ann & Michael's genotypes?_____

d. Most likely, Sandra's genotype is _____.

e. List three people from the chart (other than George) who are most likely *carriers* of Falconi anemia.

_____

Unit 9: Evolution

Objectives

A. Define evolution.

B. Explain Darwin's theory of natural selection.

C. Distinguish between homologous, analogous, and vestigial structures. How are they related to evolution?

E. Define geographic isolation and explain how it can lead to speciation.

Practice Questions

1. Darwin used the phrase "descent with modification" to mean that
   a. new species descended from preexisting species, and species must be able to change over time.
   b. organisms that descend from high elevations are modified as they acquire new traits.
   c. all living things descended from a recent common ancestor on the Galápagos Islands.
   d. individuals modify their behavior to survive and then pass those modifications on to their descendants.

2. According to Darwin's theory of natural selection,
   a. individuals are modified by adverse environmental conditions.
   b. the environment affects all organisms in a population in the same way.
   c. populations of all organisms grow unchecked under natural conditions.
   d. organisms that have more favorable traits tend to leave more offspring.

3. In an evolutionary sense, an individual organism has high fitness if it
   a. has a large number of acquired traits.
   b. can run long distances without becoming exhausted.
   c. reproduces more successfully than other individuals.
   d. evolves into another organism rather than becoming extinct.

4. The wing of a bat and the foreleg of an alligator are
   a. analogous features
   b. homologous features
   c. vestigial structures
   d. artificially selected features

5. Features that were useful to an ancestral organism but are not useful to a modern organism that inherited them are said to be
   a. analogous.
   b. homologous.
   c. vestigial.
   d. artificially selected.

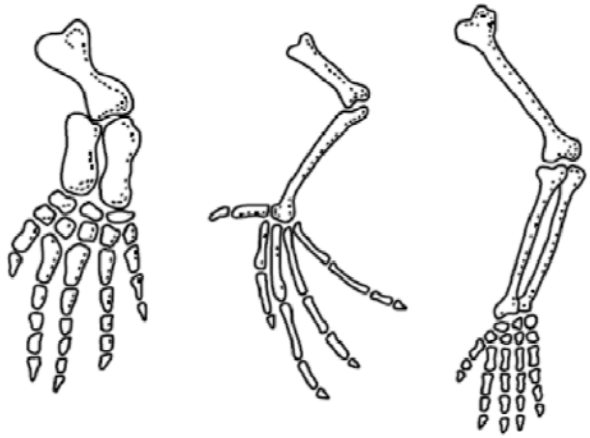
6. Fish populations that do not interbreed because they live in different ponds may evolve into separate species due to
   a. ecological isolation
   b. geographic isolation
   c. sexual selection
   d. postzygotic isolation

7. What are two main components of natural selection?
   a. vestigial structures and camouflage
   b. artificial selection and selective breeding
   c. variation and inheritance
   d. mimicry and artificial selection

8. Which statement is true regarding evolution?
   a. It describes changes over many generations.
   b. It is the same as natural selection.
   c. It only involves artificial selection.
   d. It occurs within a single generation.

9. Which of these is not a component of the theory of natural selection in a duck population?
   a. Ducks in a population will have different markings on their feathers.
   b. Traits that make swimming difficult are likely to be passed on.
   c. Baby ducks carry the same traits as parents.
   d. Not all offspring survive after hatching.

10. Explain how the structures below indicate an evolutionary relationship between whales, rats, and humans.



Unit 10: Diversity of the Biosphere

Objectives

A. List the common levels of modern classification from general to specific.

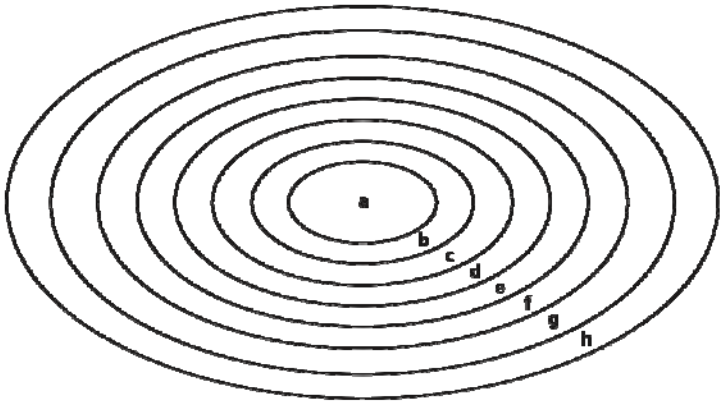
B. Explain what information a phylogenetic diagram displays.

C. Describe the six-kingdom system of classification.

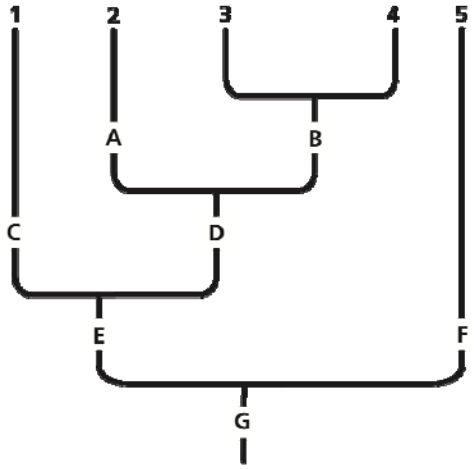
Practice Questions

1. The scientific name of an organism commonly called the pangolin is
   a. Manis temminckii
   b. manis temminckii
   c. *Manis temminckii*
   d. *Manis Temminckii*

2. Use the figure to fill in the names of the seven levels of organization in the modern Linnaean system of classifying organisms, with *a* representing the smallest category and *h* the largest category.



3. The phylogenetic diagram below indicates the evolutionary relationships for a hypothetical group of modern organisms, labeled 1-5 and their ancestors, labeled A-G.



a. Which two modern organisms are likely to be most closely related? _____

b. What was the most recent common ancestor of organisms 2 and 3? _____

c. What was the most recent common ancestor of organisms 1 and 5? _____

Unit 11: Microorganisms and the Immune System

Objectives

A. Describe the internal and external structure of prokaryotic cells.

B. Describe the ways in which bacteria can cause disease in humans.

C. Describe how the skin and mucous membranes protect the body against pathogens.

D. Describe the role of antibiotics in bacterial infection.

E. Describe the basic structure of viruses.

F. Compare the lytic and lysogenic cycles of virus replication.

G. Describe how viruses cause disease in humans.

H. Analyze the roles of white blood cells in fighting pathogens.

I. Identify and describe the parts of the immune system.

J. Compare the actions of T cells and B cells in the immune response.

K. Relate vaccination to immunity.

L. Describe the relationship between HIV and AIDS.

Practice Questions

1. Viruses are not alive because they
   a. do not grow.
   b. lack cell parts.
   c. do not metabolize.
   d. All of the above

2. Viruses can reproduce
   a. independently of host cells.
   b. independently of host cells if they first take up organelles from the host cells.
   c. only within host cells.
   d. only with the assistance of other viruses.

3. The process by which two living bacteria bind together and transfer genetic information is called
   a. conjugation.
   b. transformation.
   c. transduction.
   d. encapsulation.

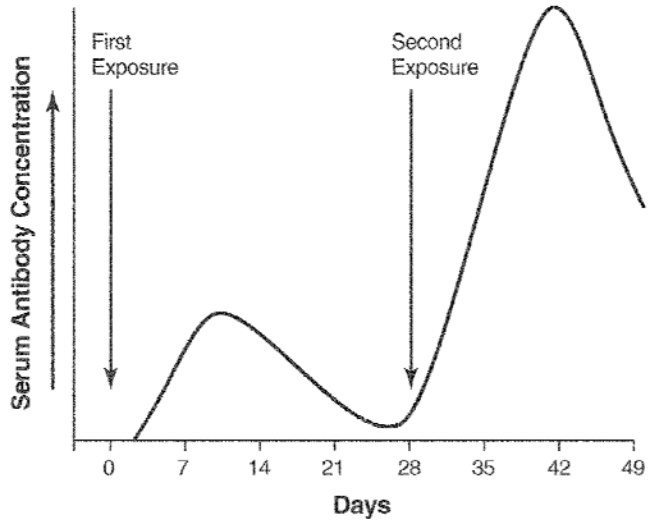


Figure 37-2

4. Examine Figure 37-2. Which type of immunity is the second (right) peak of the graph illustrating?
   a. active immunity
   b. passive immunity
   c. nonspecific immunity
   d. immune system failure

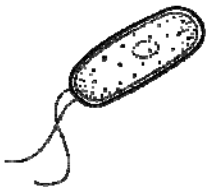
5. Examine Figure 37-2. How does the second response to the antigen differ from the first response?
   a. In the second response, fewer T cells are activated.
   b. The first response is faster than the second response.
   c. In the second response, a greater number of B cells are activated.
   d. The first response produces more antibodies than the second response.

6. Which of the following cells are involved in nonspecific immunity?
   a. B cells
   b. cytotoxic T cell
   c. helper T cell
   d. neutrophils

7. Which of the following does the diagram above represent?
   a. a virus
   b. a prion
   c. a viroid
   d. a bacterium

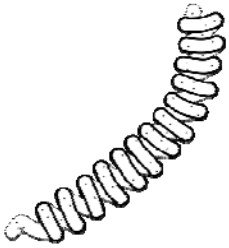
8. To which of the following is label *X* pointing?
   a. envelope
   b. nucleic acid
   c. protein coat
   d. cell membrane

Label each drawing below with the most appropriate term from the following list: coccus, streptococcus, spirochete, bacillus.

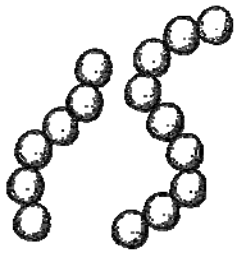


1. _____

2. _____



3. _____



4. _____

The diagram below shows a Petri dish containing a bacterial culture and four paper disks (labeled A–D) treated with different antibiotics. The concentrations of all four antibiotics are the same. Dark areas on the dish indicate bacterial growth, and clear areas indicate inhibition of bacterial growth. State whether the bacteria in this culture are very sensitive, moderately sensitive, or insensitive to each antibiotic, and explain your reasoning.

A. _____

_____

B. _____

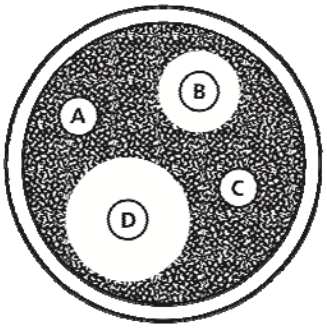
_____

C. _____

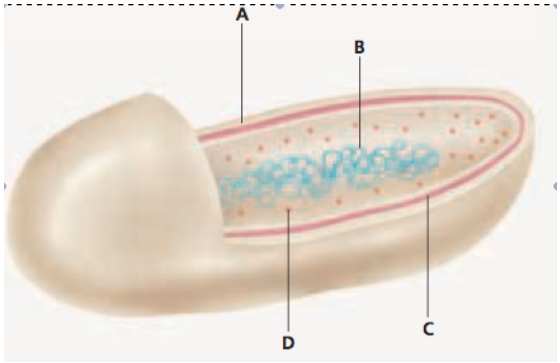
_____

D. _____

_____



Label the structures A- D on the bacterial cell below.



A. _____

B. _____

C. _____

D. _____

Unit 12: Ecology

Objectives

A. Summarize the role of producers in an ecosystem.

B. Identify several kinds of consumers in an ecosystem.

C. Explain the important role of decomposers in an ecosystem.

D. Compare the concept of a food chain with that of a food web.

E. Explain why ecosystems usually contain only a few trophic levels.

F. Identify possible causes and results of interspecific competition.
G. Explain how disturbances affect community stability.

H. Distinguish between types of succession, and explain why succession may not be predictable.

Practice Questions

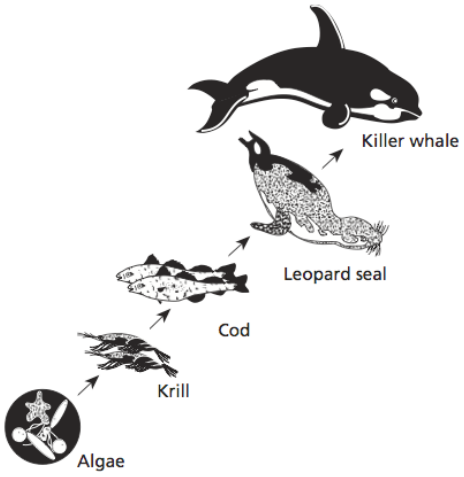
1. What are the levels of organization in ecology?
   a. cell, tissue, organ, organ system, body
   b. organ, organism, population, community
   c. organism, population, community, ecosystem, biosphere
   d. population, habitat, ecosystem, biogeochemical system, planet

2. The percentage of energy transferred from one level to another in a food chain is usually
   a. greater than 90 percent
   b. about 75 percent
   c. about 50 percent
   d. less than 20 percent

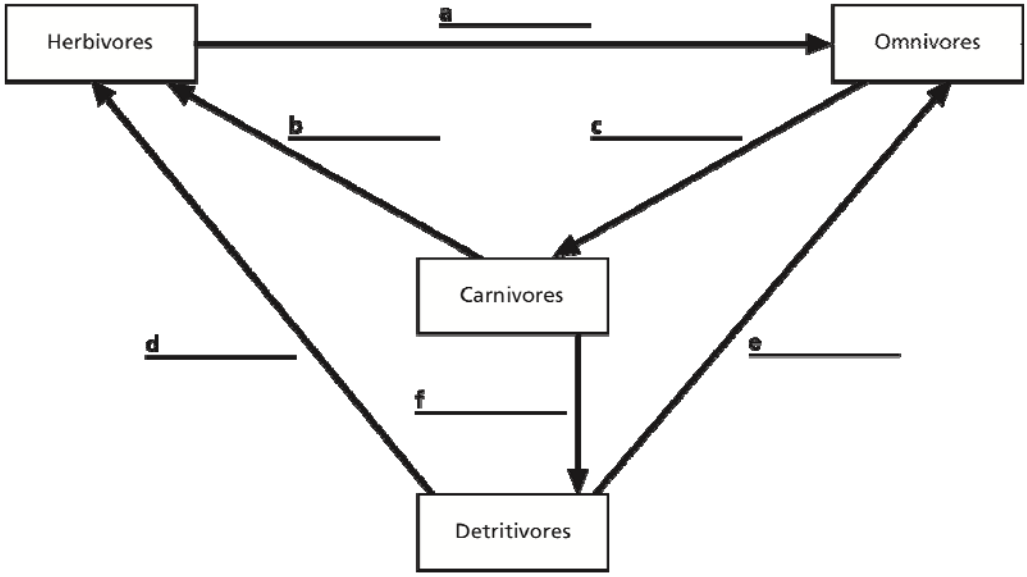
3. The first organisms to appear during ecological succession are called ____.
   a. succession plants
   b. pioneer species
   c. end point species
   d. primary organisms

4. What is a climax community?
   a. stable community with little change in species number
   b. community consisting of pioneer organisms
   c. community left behind immediately after a forest fire
   d. community with no biotic factors

5. In the food chain below, determine the roles (producer, consumer, etc) of the organisms and the trophic levels they occupy.



The diagram below shows part of a food web. Each arrow indicates energy passing from one member (the food) to another (the consumer). Only some of the indicted relationships are possible. Write yes in the spaces corresponding to the possible relationships and no in the spaces corresponding to the relationships that are not possible.



In order to do well on your final exam, you should be able to use the following vocabulary terms in context:

Aerobic
Aerobic Respiration
Age Structure Graph
Alleles
Amino Acid
Anaerobic
Anaphase
Ancestor
Antibiotics
ATP
Bacillus
Bacteria
Birth Rate
Blood Typing
Cancer
Carbohydrate
Carbon Fixation
Carrying Capacity
Catalysts
Cell Membrane
Cell Wall
Cellular Respiration
Chloroplast
Chromosome
Class
Codon
Communities
Competition
Competitive Exclusion
Conjugation
Consumer
Control Group
Crossing Over
Cystic Fibrosis
Cytoplasm
Death Rate
Decomposers
Dependent Variable
Developed Country
Digestive System
DNA
DNA Replication
Domain
Dominant
Ecological Pyramid
Ecology
Ecosystem
Electron Transport Chain
Endoplasmic Reticulum
Endospores
Enzymes
Eukaryote
Evolution
Expressed
Family
Food web
Fundamental Niche
Fungi
Gamete
Gene Pool
Gene Therapy
Genetic Composition
Genome
Genotype
Genus
Geographic Isolation
Glycolysis
Golgi Apparatus
Grasslands
Habitat
Half-life
Healthy Carrier
Herbicide
Heterotrophs
Homeostasis
Homologous Chromosomes
Homozygous
Human Population Growth
Hypothesis
Immune System
Independent Variable
Infections
Inherited
Interaction
Interphase
Karyotype
Kingdom
Lactic Acid Fermentation
Law of Segregation
Macrophages
Meiosis
Memory Cells
Metaphase
Microbes
Mitochondria
Mitosis
mRNA
Mutation
NADH
Natural Selection
Nucleic Acid
Nucleotide
Nucleus
Nutrient Agar
Offspring
Order
Organelles
Organism
Oxidative Respiration
Parasites
Pathogens
Pedigree
Pesticide
Phenotype
Photosynthesis
Photosynthetic Autotrophs
Phylogenetic Tree
Phylum
Polar
Polysaccharide
Population
Predator
Probability
Producer
Products
Prokaryote
Prophase
Protein
Protein coat
Pyrimidine
Reactants
Recessive
Replicate
Resistance
Ribosomes
RNA
Segregation
Species
Staphylococcus
Substrate
Succession
Symbiosis
Telophase
The Krebs cycle
Toxins
Traits
Trophic Levels
True-breeding
Underdeveloped Country
Vaccine
Vacuole
Validity
Virus
X and Y Chromosomes