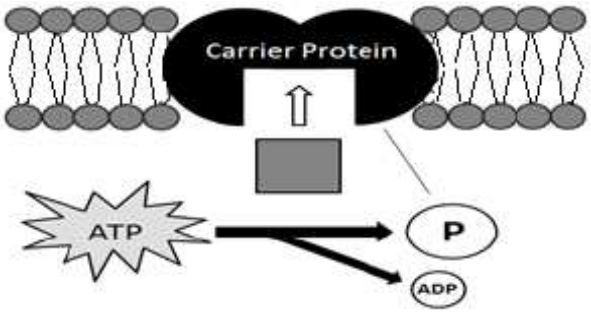
DAY 1 – Biology 10-Day EOC Review **Name _____ Period _____**

Cell Structure and Function

Readiness TEKS B.4B, B.4C

1. The model below represents a cell membrane. What is the role of ATP in this process?



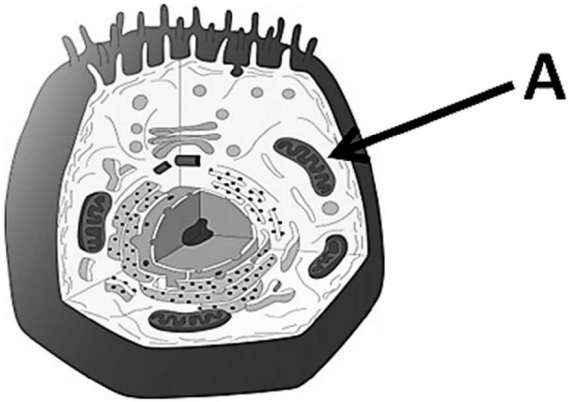
A provide energy for the diffusion of molecules within the cell

B provide energy for the active transport of molecules across the cell membrane

C synthesis of a carrier protein to passively transport molecules across the cell membrane

D provide energy for cellular respiration

3. What is the function of the cellular structure labeled "A" in the diagram below.



A controls what enters and leaves the cell and maintains homeostasis

B contains the chromosomes of the cell

C breaks down food to release energy

D creates proteins

2. If a cell is in an environment that has a greater concentration of salt than the cytoplasm inside the cell, the cell will most likely:

F gain water

G increase in size

H initiate mitosis

J lose water

4. Which of the following is an example of molecular synthesis within a cell?

F ATP releasing energy

G oxygen moving across the cell membrane

H glucose bonding to form starch

J a cell maintaining homeostasis

DAY 1 – Biology 10-Day EOC Review **Name _____ Period _____**

Cell Structure and Function

Readiness TEKS B.4B, B.4C

5. A paramecium maintains homeostasis in a hypotonic environment by allowing water to diffuse into the cell and contracting its vacuole to pump water out of the cell. Based on this information, which of the following is true?

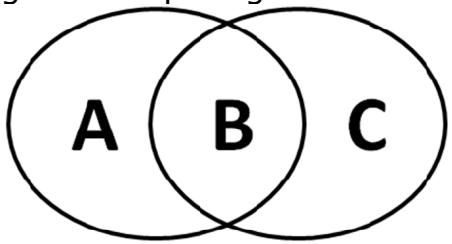
A Less energy is required for the cell to maintain homeostasis in a hypotonic environment than in an isotonic environment.

B Homeostasis is primarily achieved through active transport of water into the cell in a hypotonic environment.

C A paramecium uses more energy in a hypotonic environment than in a hypertonic environment.

D More energy is required for the cell to maintain homeostasis in a hypertonic environment.

7. What would be a possible description for the letters A, B, and C in the diagram comparing viruses and cells?



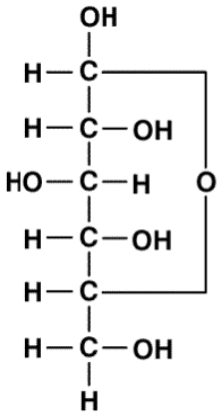
A A – protein coat; B – nucleic acids; C – nucleus

B A – organelles; B – nucleus; C – nucleic acids

C A – cell wall; B – nucleic acids; C – nucleus

D A – complex structure; B – organelles; C – cell wall

6. Glucose is a sugar that plays an important role in both plant and animal cells. Which statement best describes the role of glucose?



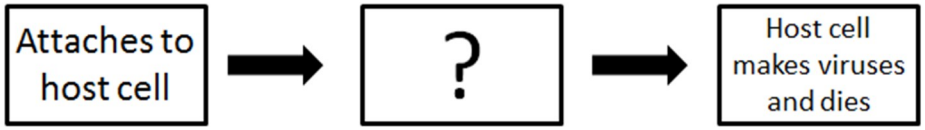
F Glucose is converted into energy through photosynthesis in plant cells.

G Glucose is synthesized during photosynthesis in plant cells.

H Glucose is synthesized through respiration in animal cells.

J Mitochondria release energy by bonding glucose molecules together.

8. Viral reproduction can be simplified in the following sequence. What process is missing from this descriptive model?



F the virus releases its nucleic acids

G the virus forces the cell to undergo mitosis

H the virus divides itself

J the virus uses the cell's energy to grow larger

DAY 1 – Biology 10-Day EOC Review **Name _____ Period _____**

Cell Structure and Function *Readiness TEKS B.4B, B.4C*

9. Scientists are able to determine that a disease has the following characteristics:

- no self-metabolic process
- rapid reproduction
- does not respond to antibiotics

Which of the following answer choices is a possible identification of this disease?

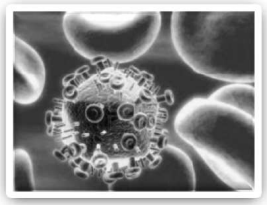
A food poisoning (*E. coli*)

B skin cancer

C sinus bacterial infection

D influenza

10. HIV only effects humans because:



F other animals have never been in contact with HIV

G the virus targets human T-cells as its host cell

H humans have relatively weak immune systems

J other animals have more white blood cells

11. Mr. Katz researches information on how virus and bacteria compare with one another. Which of the following would be a true generalization?

A Viruses are able to reproduce similar to bacteria through mitosis.

B Bacteria and viruses both utilize host cells for their energy.

C Antibiotics are effective in treating bacterial and viral infections.

D Bacteria and viruses reproduce using genetic coding found in nucleic acids.

12. In the chart comparing the structure of viruses and cells, which best fits the missing description?

	Virus	**Cell**
External Structure	*?*	Cell Membrane
Internal Structure	DNA/RNA material only	Nucleus and organelles

F ribosomes

G golgi complex

H protein coat

J endoplasmic reticulum

DAY 1 – Biology 10-Day EOC Review **Name _____ Period _____**

Cell Structure and Function

A. Cell membrane B. Vacuole C. Homeostasis D. Virus E. Host cell F. Diffusion G. Active transport H. Mitochondria I. Cytoplasm J. Nucleic acids K. Cell wall L. Chloroplast M. Passive transport N. Hypotonic O. Prokaryotic P. Hypertonic Q. Organelles R. Nucleus S. Eukaryotic	1. _____ tiny non-living structure that depends on a host cell to reproduce 2. _____ supports and protects cell membrane in plant cells 3. _____ simple cells without organelles 4. _____ specialized functional bodies within the cytoplasm of a cell 5. _____ regulation of conditions within a cell which allows for stable equilibrium 6. _____ organelle that holds water; particularly large in plant cells 7. _____ complex cells containing organelles with specific functions 8. _____ controls the cell's activities; contains the cell's DNA 9. _____ solution with a relatively higher solute concentration (such as salt) 10. _____ contains chlorophyll for photosynthesis in plant cells 11. _____ solution with a relatively lower solute concentration (such as salt) 12. _____ diffusion of a substance across a cell membrane requiring no energy 13. _____ a biological molecule, such as DNA or RNA, that contain genetic coding 14. _____ suspends organelles in a eukaryotic cell; enclosed by the cell membrane 15. _____ a particular type of cell that is targeted by a virus for reproduction 16. _____ the tendency of a substance to move from a higher concentration to lower concentration 17. _____ movement of a substance across a cell membrane requiring the use of energy 18. _____ organelle responsible for breaking down food into energy 19. _____ controls what leaves and enters the cell; maintains homeostasis

DAY 2 – Biology 10-Day EOC Review **Name _____ Period _____**

Cell Structure and Function *Readiness TEKS B.5A, B.9A*

1. A human cell undergoes the following processes.

- Chromatin condenses into chromosomes.
- The chromosomes align in the middle of cell.
- The chromosomal sets are pulled to opposite ends of the sets.

What is the next process the cell will undergo?

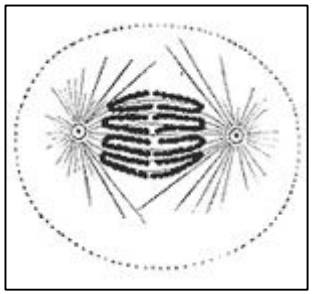
A The cell membrane will collapse around the two sets of chromosomes.

B Two daughter cells will begin to increase in size.

C DNA will replicate in two separate cells.

D The cell will begin zygote formation.

3. Describe the cell cycle step and process that is occurring in the picture below?



A Daughter nuclei form at the opposite ends of the parent cell where the chromosomes have gathered.

B Paired centromeres of each chromosome separate, liberating the sister chromatids from each other.

C Chromosomes are duplicated and the cell continues to increase in size.

D Bundles of microtubules begin to extend toward each pole of the cell and the nuclear envelope fragments.

2. Cell cycle is important to organisms because it allows them to:

F Continual renewal of internal organs

G Growth of an adolescent into a mature adult

H Both F and G

J Neither F and G

4. Which of the following steps does a cell spend the largest portion of the cell cycle?

F Anaphase

G Prophase

H Cytokinesis

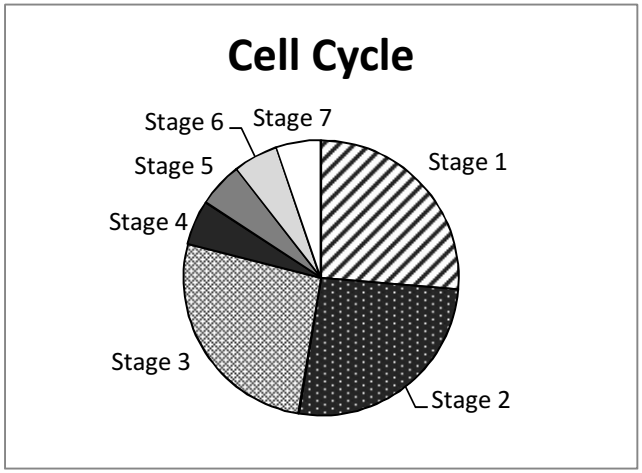
J Interphase

DAY 2 – Biology 10-Day EOC Review **Name _____ Period _____**

Cell Structure and Function

Readiness TEKS B.5A, B.9A

5. In which stage of the cell cycle does the cell undergo DNA synthesis and replication?



A Stage 1

B Stage 2

C Stage 4

D Stage 6

6. Using the chart in question #5, describe what occurs in Stage 7.

F The parent cell's membrane "pinches" around the daughter cells completing mitosis.

G The cell grows and produces enzymes.

H DNA is synthesized and replicated.

J Chromosomes align on the metaphase plate.

7. Below are the structures and functions of key biomolecules. What would molecule #3 be considered?

Molecule	Structure	Function
1	contains carbon, oxygen, and hydrogen; 2:1 H to O	source of energy (glucose) and can give structure to cell (cellulose)
2	contains carbon, oxygen, and hydrogen; insoluble in water	source of energy; protective coating (wax); chemical messenger (cholesterol)
3	contains carbon, oxygen, nitrogen, and hydrogen; large and complex	enzymes; hormones; transport molecules; structural molecule
4	contains a sugar group, phosphate group, and nitrogen base; complex	carrier of genetic information; instructions for protein synthesis

A nucleic acid

B lipid

C protein

D carbohydrate

8. Using the table in question #7, DNA would be considered in what molecule group?

F Molecule 1

G Molecule 2

H Molecule 3

J Molecule 4

DAY 2 – Biology 10-Day EOC Review **Name _____ Period _____**

Cell Structure and Function *Readiness TEKS B.5A, B.9A*

9. Which of the following biomolecules can typically be converted to energy by a human cell's mitochondria?

I. Carbohydrates
II. Proteins
III. Nucleic Acids
IV. Lipids

A I and II only

B I, II, and IV only

C I, III, and IV only

D II and IV only

10. The following statements suggest that proteins and carbohydrates are able to serve what purpose?

- Keratin (protein) – component in fingernails
- Cellulose (carbohydrate) - component of cell walls

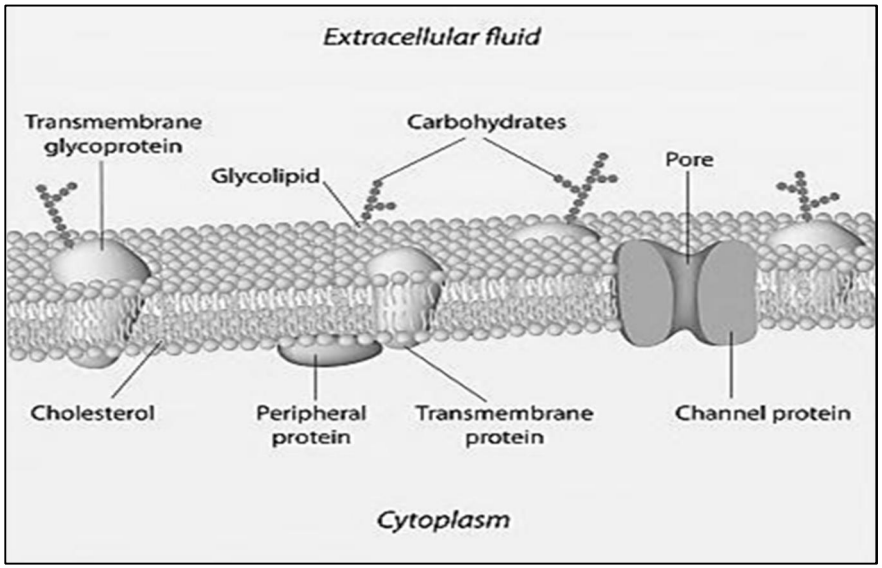
F Certain proteins and carbohydrates can provide structure and support.

G Proteins and carbohydrates are important sources of energy.

H Proteins and carbohydrates are vital to cell division.

J DNA replication requires the use of proteins and carbohydrates.

11. The following diagram illustrates which of the following statements?



A Nucleic acids, such as DNA, replicate by matching pairs of nitrogen bases.

B Molecules, such as ATP, are required for active transport.

C Photosynthesis uses energy from sunlight to synthesize carbohydrates.

D Carbohydrates, fatty acids, and proteins are all key components to the cellular membrane.

DAY 2 – Biology 10-Day EOC Review **Name _____ Period _____**
Cell Structure and Function

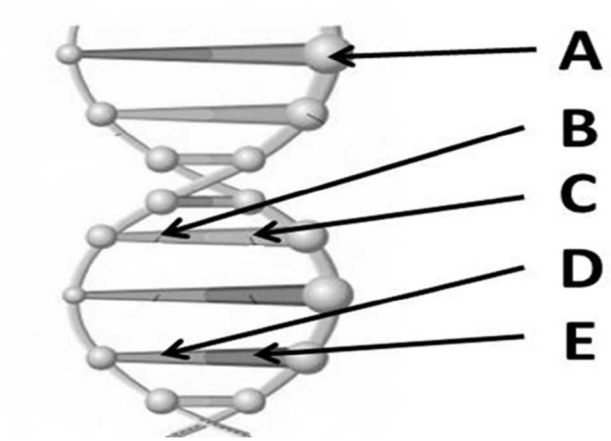
A. Prophase B. Interphase C. Carbohydrates D. Metaphase E. Proteins F. Lipids G. Telophase H. Anaphase I. Cytokinesis J. Cell Cycle K. DNA Replication L. Mitosis M. Chromosome	1. _____ nuclear envelopes are formed around daughter cells' nuclei; cell division is completed in this stage 2. _____ source of energy; contains carbon, hydrogen, and oxygen; sugars and starches 3. _____ sequence of phases consisting of cell growth and division; important to an organism's growth and development 4. _____ transforms one strand of nucleic acid into two sets so that each set may be passed on to daughter cells in cell division 5. _____ composed of amino acids; large and complex; can be a hormone or enzyme 6. _____ phase during the cell cycle in which the nucleus is divided resulting in identical daughter cells 7. _____ chromatids are separated into identical sets of chromosomes and begin moving toward opposite ends of the parent cell 8. _____ nucleoli disappears; mitotic spindle forms in between pairs of centrioles 9. _____ division of the parent cell's cytoplasm; occurs in conjunction with telophase 10. _____ source of energy; insoluble in water; includes fats, wax, and oils 11. _____ contains genetic information in the form of DNA 12. _____ DNA is replicated; cells grows and develops 13. _____ chromatids align in the middle of the cell and are attached to spindle structure that stretches to opposite ends of the cell

DAY 3 – Biology 10-Day EOC Review **Name _____ Period _____**

Mechanisms of Genetics *Readiness TEKS B.6A, B.6E*

Use the image below to answer the questions on this page.

DNA Structure



1. Letters B, C, D, and E can all be labeled as a:

A sugar

B phosphate group

C nitrogen base

D protein

2. If letter "B" is Thymine, what would letter "C" be?

F Adenine

G Guanine

H Cytosine

J Uracil

3. Nucleotides are the structures that make up the nucleic acid molecules. Which of the following components make up a nucleotide?

I. Phosphate Group
II. Sugar
III. Fatty Acid
IV. Nitrogen Base

A I, III, and IV only

B I and IV only

C II, III, and IV only

D I, II, and IV only

4. Information in DNA is carried in sequences of genetic code. How are these genetic codes translated into specific proteins that carry out functions within the organism?

F Triplets, a group of three nucleotides, create a code for a specific amino acid. These amino acids are combined into chains to form proteins.

G Nitrogen bases in the DNA strand recombine into amino acids chains.

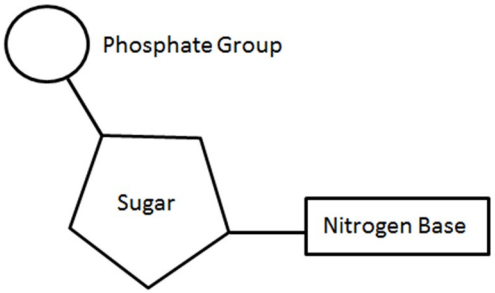
H Mutations within a set of nucleotides create variations in genetic coding. These variations are vital to consistent protein synthesis.

J All of the above are true.

DAY 3 – Biology 10-Day EOC Review **Name _____ Period _____**

Mechanisms of Genetics *Readiness TEKS B.6A, B.6E*

5. In the genetic structure below, which component changes when coding for different triplets and amino acids?



A sugar

B phosphate group

C nitrogen base

D all three above will change in creating different triplets

6. Two brothers are born to the same set of parents, but one has blue eyes and the other has brown. What is the explanation for this occurrence?

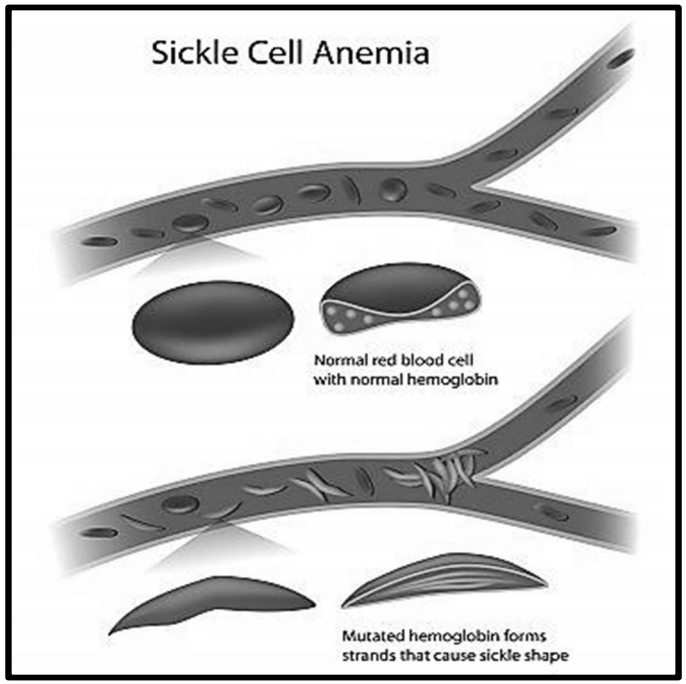
F The two brothers have a different number of chromosomes.

G The brother with blue eyes has a genetic mutation in his DNA.

H The brothers have different sets of nucleotide sequences.

J The brothers received different amounts of DNA from their parents.

7. Sickle cell anemia, illustrated in the picture below, is the result of a mutation. What is the likely cause of this genetic mutation?



A During mitosis, a virus infects the parent blood cell passing the disease to the daughter cells.

B A single nucleotide in a triplet is altered from CTC to CAC.

C Bacterial infections at birth inhibit key moments of human development.

D No genetic code exists in the DNA for red blood cells in the person carrying the disease.

DAY 3 – Biology 10-Day EOC Review **Name _____ Period _____**

Mechanisms of Genetics *Readiness TEKS B.6A, B.6E*

8. Which of the following statements is NOT true about the definition and function of mutations?

F Mutations are never passed to the offspring from a parent even if they occur in a gamete cell due to the ability of DNA to self-correct coding errors.

G Triplets can be inserted, deleted, or substituted in a DNA coding sequence.

H Mutations affect protein synthesis through changes in the mRNA.

J Some mutations can be beneficial or simply cause a neutral variation in genetic coding.

9. At which step during protein synthesis does a mutation occur?

A DNA is copied and each new cell gets a full copy.

B Information copied from DNA is moved into the cytoplasm.

C Proteins are assembled at the ribosomes.

D Proteins fold and begin functioning.

10. The chart below illustrates the amino acids that a specific triplet creates.

Amino Acid	Triplet 1	Triplet 2	Triplet 3
Arginine	AGG	AGA	
Asparagine	AAU	AAC	
Isoleucine	AUU	AUC	AUA
Threonine	ACU	ACC	ACA

Which of the following mutations would result in a different protein being synthesized?

F AUA is mutated into AUU

G AGA is mutated into AGG

H AUU is mutated into ACU

J ACC is mutated into ACA

11. Which of the following would be considered a beneficial genetic alteration?

A Many current Europeans have a gene for Bubonic Plague resistance.

B People from African descent have higher amounts of melanin, increasing resistance to skin cancer.

C Peppered moths changed from gray to black during the industrial revolution in England.

D All of the above

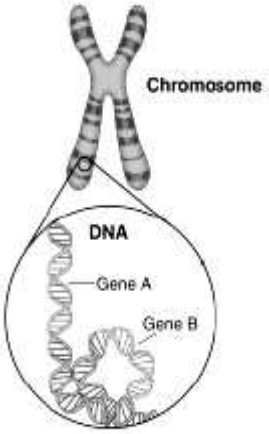
DAY 3 – Biology 10-Day EOC Review **Name _____ Period _____**
Mechanisms of Genetics

A. Mutation B. DNA C. Nucleotide D. Nitrogen Base E. RNA F. Triplet (or Codon) G. Protein H. Amino Acid I. Transcription J. Translation K. Genetic Code	1. _____ a carbon-hydrogen-oxygen-nitrogen molecule created from a specific triplet sequence 2. _____ carries genetic information from parent cell or parents' egg and sperm cells 3. _____ formed from a sequence of three nucleotides and specify one of twenty different amino acids 4. _____ process that copies DNA's genetic information into messenger RNA 5. _____ insertion, deletion, or substitution in a DNA sequence 6. _____ process by which a protein is made from mRNA and occurs within a cell's ribosome 7. _____ language of triplets that is common to all organisms 8. _____ a component of the nucleotide and pairs with a complimentary form from another nucleotide 9. _____ a component of DNA that consists of a sugar, phosphate group, and nitrogen base 10. _____ nucleic acid that uses genetic information from DNA to produce proteins 11. _____ a molecule made from an amino acid chain that performs a specific task

DAY 4 – Biology 10-Day EOC Review **Name _____ Period _____**

Mechanisms of Genetics *Readiness TEKS B.6E, B.6F*

1. In the diagram below, Gene A and Gene B are altered through a mutation. Based on this information, which of the following is a KNOWN correct statement?



A Gene A and Gene B have triplets that produce the same amino acids.

B Gene A and Gene B have a different nitrogen base in at least one triplet than the original sequence.

C Gene A and Gene B code for different proteins.

D Gene A and Gene B will be harmfully expressed in the organism.

2. A change in a nitrogen base in a cell's DNA will most likely:

F alter the type of protein to be synthesized

G change the number of chromosomes

H adjust the sequence of sugars in a nucleotide

J alter the primary function of the cell

3. Below is the nitrogen base sequence for a strand of DNA.

UAU-UGG-GUG-CUA

A mutation occurs and the nitrogen base cytosine is replaced with adenine in the sequence above. Using the amino acid chart below, determine if a detectable change in protein synthesis has occurred?

Tyrosine	Leucine	Tryptophan	Isoleucine	Valine
UAU	CUC	UGG	AUU	GUC
UAC	CUU		AUC	GUA
	CUA		AUA	GUG

A No, the protein will remain the same despite the change in nitrogen bases.

B Yes, Leucine is changed to Tyrosine.

C Yes, Leucine is changed to Isoleucine.

D Yes, Valine is changed to Isoleucine.

4. Using the information and chart in Question #3, would there be a change if adenine is replaced with cytosine in the last triplet?

F Yes, Leucine is changed to Valine.

G No, the triplet will still code for Leucine.

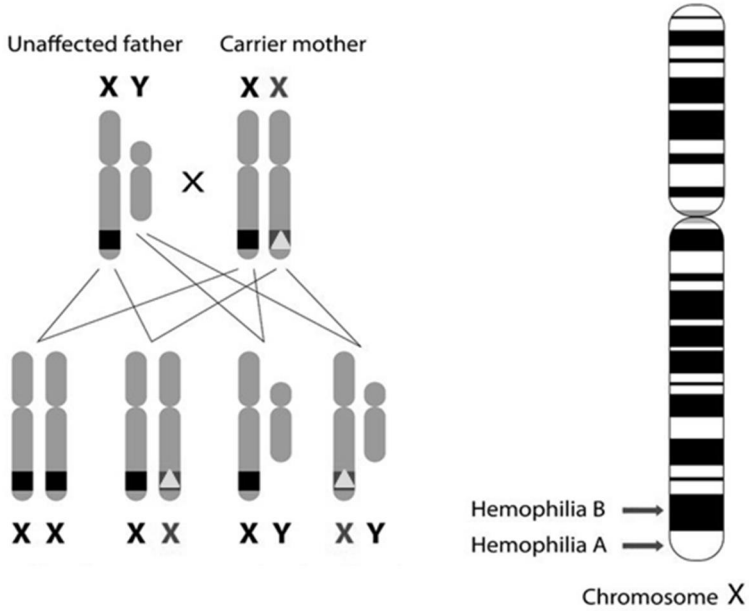
H Yes, Valine is changed to Tyrosine.

J No, the triplet will still code for Valine.

DAY 4 – Biology 10-Day EOC Review **Name _____ Period _____**

Mechanisms of Genetics *Readiness TEKS B.6E, B.6F*

5. Hemophilia is a genetic blood clotting disorder. The disease is recessive occurring on the X chromosome.



Which of the following statements is true about a single potential offspring between the two parents in the illustration above?

A There is a 50% chance their child, either a boy or a girl, will display Hemophilia.

B There is a 25% chance their child, only a boy, will display Hemophilia.

C There is a 25% chance their child, only a girl, will display Hemophilia.

D No potential child will display Hemophilia, but there is a 50% chance their child will carry the gene.

6. Using the illustration in Question #5, what percentage of their children will have two X chromosomes and be considered heterozygous for the Hemophilia gene?

F 0%, 0:4

G 25%, 1:4

H 50%, 2:4

J 100%, 4:4

7. Because Hemophilia occurs on the X chromosome that determines the sex of the offspring, which of the following is true?

A The majority of affected people will be female.

B The majority of affected people will be male.

C Hemophilia will affect males and females equally.

D Hemophilia is not a sex-linked gene.

DAY 4 – Biology 10-Day EOC Review **Name _____ Period _____**

Mechanisms of Genetics *Readiness TEKS B.6E, B.6F*

8. Scientists cross two organisms which produce 32 offspring. The research team determines that tallness (T) is dominant over shortness (t), and brown eyes (B) are dominant over green eyes (b) Both parents' genotype for height and eye color are TtBb. Of the 32 offspring produced, how many will likely be short with green eyes?

F 2

G 6

H 1

J 18

9. A particular individual is heterozygous for hair color (H), homozygous for eye color (B), and is female. Which genotype below describes this individual?

A XX, HHBb

B XY, HHBb

C XX, HhBB

D XY, HhBB

10. Which of the following examples do not follow traditional rules of dominant-recessive behavior?

F A male loses his hair in his forties, just like his grandfather on his mother's side.

G A bean plant is homozygous for height and is shorter than heterozygous plants.

H A female child has blue eyes like her mother and father.

J Two parent flowers, one white and one red, produce pink offspring.

11. Two parent plants produce four offspring. The chart below shows the height and leaf type of each offspring plant. What can we conclude about this genetic pattern?

	Plant 1	Plant 2	Plant 3	Plant 4
Height	Tall	Short	Tall	Short
Leaf Type	Wide	Wide	Narrow	Narrow

A The phenotype for all four plants are the same.

B All of the offspring plants are heterozygous.

C This is an example of non-Mendelian inheritance.

D The alleles of these traits segregate and recombine independently.

DAY 4 – Biology 10-Day EOC Review **Name _____ Period _____**
Mechanisms of Genetics

A. Trait B. Sex Chromosome C. Homozygous D. Heterozygous E. Genotype F. Phenotype G. Chromosome H. Allele I. Mendelian Genetics J. Non-Mendelian Genetics K. Punnett Square L. Dominant Trait M. Recessive Trait	1. _____ form of a gene that controls a characteristic 2. _____ trait that appears when two non-dominant alleles are inherited 3. _____ structure in a cell's nucleus that contains DNA 4. _____ human males have an XY combination while females have an XX combination 5. _____ organism's expressed appearance based on its genotype 6. _____ laws of genetics that describe independently segregated and recombined alleles 7. _____ diagram that illustrates the possible genetic outcomes of offspring based on parents' genotype 8. _____ inheritance patterns that express incomplete dominance 9. _____ inherited combination of alleles that is represented by two letters 10. _____ occurs when two copies of the allele are the same 11. _____ an organism's specific characteristic 12. _____ occurs when two copies of the allele are different 13. _____ trait that is expressed over a recessive trait

DAY 5 – Biology 10-Day EOC Review **Name _____ Period _____**

Biological Evolution and Classification *Readiness TEKS B.7A, B.7E*

1. The fact that the genetic code, the "translation table" according to which DNA information is translated into proteins, is identical for nearly all organisms, including humans and bacteria, DIRECTLY supports the idea that:

F a wide variety of organisms have existed over time

G organisms are distributed over various geographic locations

H there is a strong molecular similarity among all organisms

J autotrophic organisms are much more common than organisms that are heterotrophic

2. Which of the following is a supporting fact that humans and chimpanzees have a common ancestor?

I. Fossils of humans and chimpanzees become more similar the older they are.
II. Humans and chimpanzees can be traced to the African continent.
III. Humans and chimpanzees share 99% of common DNA.

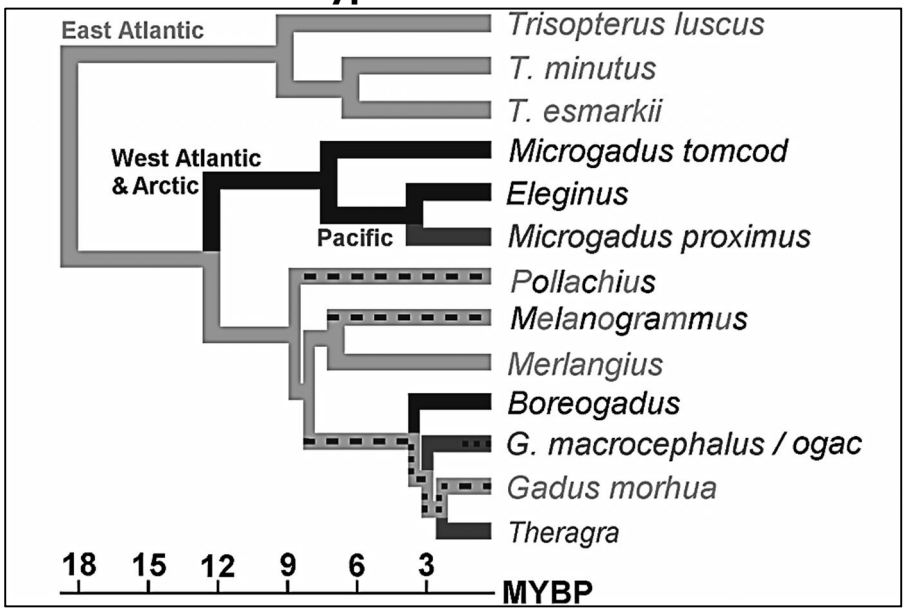
A I and III only

B I and II only

C II and III only

D I, II, and III

3. The heirarchial chart below gives evidence to what principle of evolution?



F Species that live in the same geographic region are more likely to be closely related.

G Anatomical structures between different species serve similar purposes.

H Embryonic similarities indicate how some species develop in common ways.

J The genetic code for all codfish is identical.

DAY 5 – Biology 10-Day EOC Review **Name _____ Period _____**

Biological Evolution and Classification *Readiness TEKS B.7A, B.7E*

4. Below are a single Megalodon tooth (left) and two Great White teeth (right). Megalodon became extinct about 1.5 million years ago. Based on the teeth samples below, which of the following would be a reasonable conclusion?

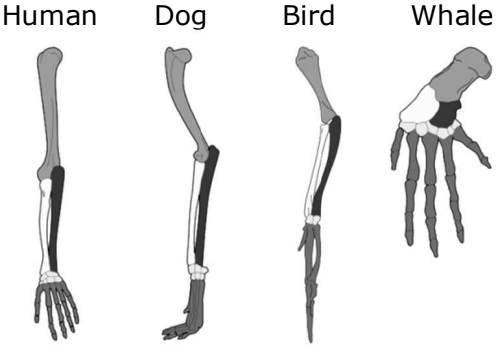
A Because of the difference in size of their teeth, it is unlikely that Megalodon and the Great White shark were related.

B Megalodon and the Great White likely evolved from a common ancestor.

C Megalodon was about the same size and shape as the Great White shark.

D Megalodon and the Great White had very different sources of food.

5. The diagram below gives evidence to what principle of evolution?



F Species that live in the same geographic region are more likely to be closely related.

G Embryonic similarities indicate how some species develop in common ways.

H Humans are anatomically more advanced than other species.

J Bones structures are homologous among many different species.

6. Two organisms are closely related on an evolutionary tree. They should:

A share the same predators and prey

B have similar embryonic development

C have no anatomical differences

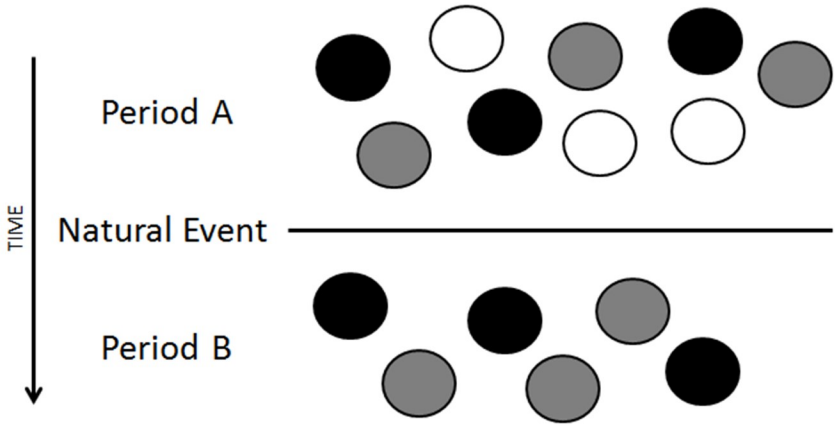
D have undergone the same genetic mutations

DAY 5 – Biology 10-Day EOC Review **Name _____ Period _____**

Biological Evolution and Classification

Readiness TEKS B.7A, B.7E

Use the diagram below to answer the questions on this page. The color differences in the circles represent small differences within the same species of a population.



7. The diagram above can be used as a model for:

F cell division through mitosis

G resemblances in embryonic development

H DNA similarities between organisms

J natural selection

8. What can be inferred about the population in Period A?

A There are three main variations within the species.

B The species live in different geographic locations.

C All of the organisms have the same DNA coding.

D All the above

9. What is the best explanation for why there are no organisms represented by the white circles after the "natural event"?

F They migrated to another location in search of new food sources.

G They did not have the right adaptations to survive the natural event.

H They underwent genetic mutations and began to resemble the gray and black individuals.

J The white organisms were preyed on by the gray and black organisms.

10. Which of the following are possible scenarios for this model?

I. A new predator migrates into an ecosystem and preys on lizards that are unable to camouflage.

II. A virus kills a number of organisms that do not have a specific genetic resistance.

III. A forest fire reduces the population of cedar trees in a particular region.

A I and II only

B I and III only

C II and III only

D I, II and III

DAY 5 – Biology 10-Day EOC Review **Name _____ Period _____**

Biological Evolution and Classification

A. Natural Selection
B. Adaptation
C. Fossil Record
D. Biogeography
E. Anatomical Homology
F. Embryonic Homology
G. Molecular Homology
H. Evolution
I. Common Ancestry
J. Diversity

1. _____ scientific explanation for the diversity we see in the natural world and how it has changed over time; natural selection is the action mechanism
2. _____ the differences seen between individuals of the same species and between species themselves
3. _____ geographic distribution of organisms; species living within the same region are more likely to be closely related
4. _____ process by which organisms with a certain set of favorable traits survive and reproduce other individuals with the same set of traits
5. _____ structural similarities between different species like the bones in bird's wing being similar to the bones in a human's arm
6. _____ theory that all organisms descended from a mutual species
7. _____ a particular trait that helps an organism survive in its environment
8. _____ displays the variety of organisms that have existed over time, including a change from ancient, simple organisms to more recent, complex organisms
9. _____ describes the similarities in the pre-birth development in different species
10. _____ refers to the common DNA patterns that exist between species; the greater the similarities in DNA, the more closely related two species will be

DAY 6 – Biology 10-Day EOC Review **Name _____ Period _____**

Biological Evolution and Classification

Readiness TEKS B.7E, B.8B

1. In 1835 Charles Darwin visited the Galápagos Islands onboard the *HMS Beagle*. During his visit, he noticed that finches had small variations in their beaks. What conclusion did he reach about these variations?

A The finches' beak size and shape most likely was the result of differences in temperature across the island.

B The beak variations were the result of small adaptations over time due the type of diet.

C The differences in the size and shape of the beaks greatly affected the aerodynamics of the finches.

D The finches with different beaks likely migrated there from another region and were not directly related to the native finches.

2. Many doctors are concerned about the overuse of antibiotics in treating bacterial infections. What is the reason for this concern?

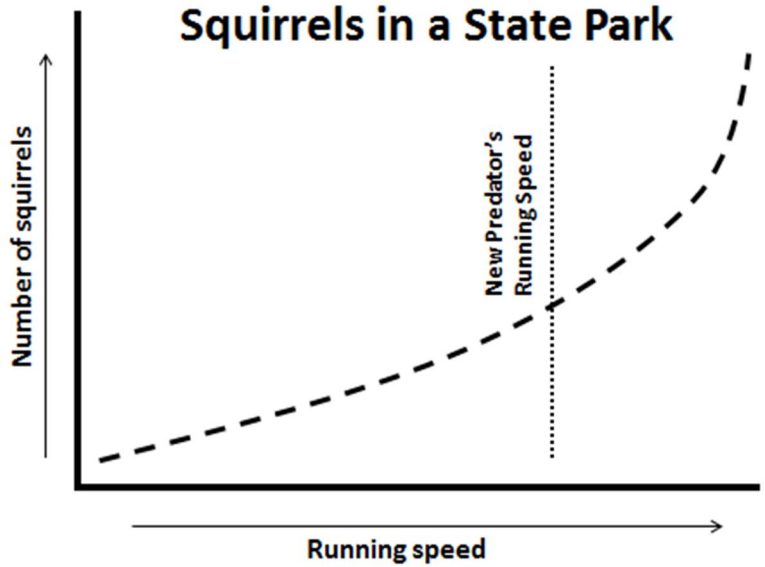
F We will have a shortage of antibiotics when we most need them to treat a major outbreak of bacterial infections.

G Antibiotics may cause a mutation in human DNA and result in higher rates of cancer.

H Antibiotics weaken the human immune system.

J Bacteria that have a genetic tendency to resist antibiotics will be more likely to reproduce those traits in future generations.

3. A squirrel population has been living in a state park mostly undisturbed over the last several years. However, a new predator has moved into the area in search of food. The graph below shows the running speed of the squirrel population and the new predator. What do you expect to occur over the next couple of years?



A The squirrel population to the left of the predator's speed will decrease.

B The squirrel population to the right of the predator's speed will decrease.

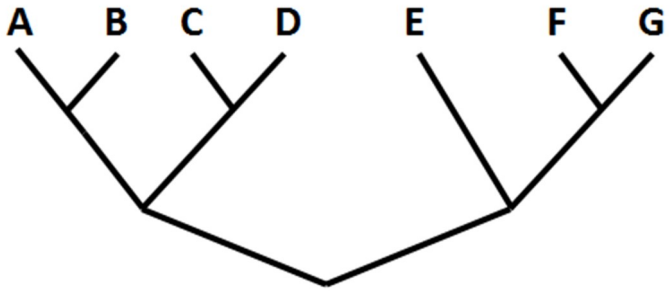
C The squirrel population to the left of the predator's speed will increase.

D The squirrel population will not change.

DAY 6 – Biology 10-Day EOC Review **Name _____ Period _____**

Biological Evolution and Classification *Readiness TEKS B.7E, B.8B*

4. The diagram below shows the relationship between several different species.



Which two species below share the closest genetic similarities?

F Species B and Species C

G Species D and Species E

H Species F and Species G

J Species F and Species E

5. Using the diagram in Question #4, which species has the greatest genetic different with Species D?

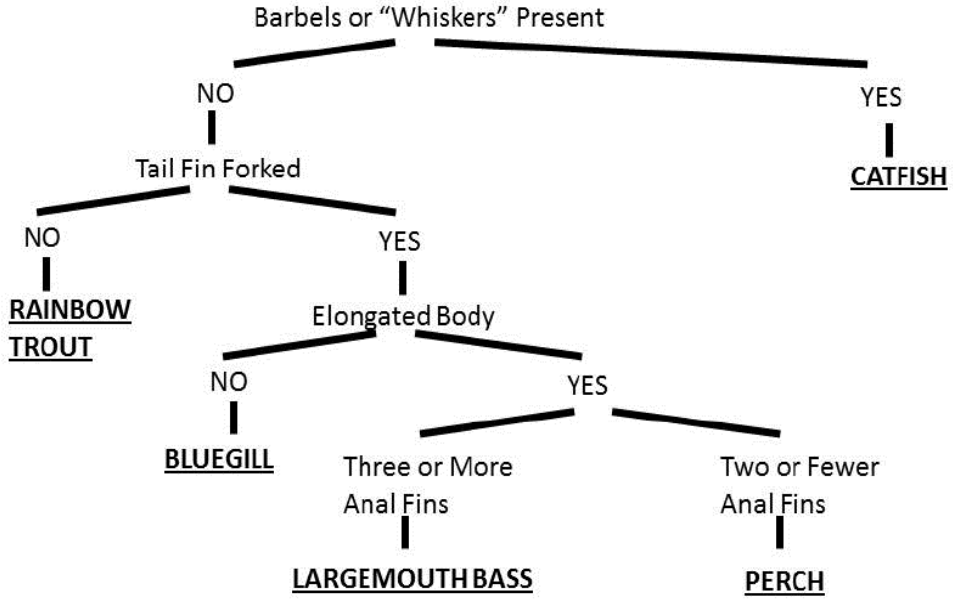
A Species C

B Species A

C Species E

D Species G

6. Use the classification tree below to determine the unknown fish.



The unknown fish below is most likely a:

F Bluegill

G Perch

H Rainbow Trout

J Catfish

DAY 6 – Biology 10-Day EOC Review **Name _____ Period _____**

Biological Evolution and Classification *Readiness TEKS B.7E, B.8B*

7. Use the table below to identify the unknown mouse.

Dichotomous Key to Select Mouse Species	
1. Tail Hair	a. no hair on tail; house mouse, *Mus musculus* b. hair on tail, go to 2
2. Ear Size	a. ears small and nearly hidden in fur, go to 3 b. ears large and not hidden in fur, go to 4
3. Tail Length	a. less than 25 mm; woodland vole, *Microtus pinetorum* b. more than 25 mm; prairie vole, *Microtus ochrogaster*
4. Tail Coloration	a. sharply bicolor, white beneath and dark above; deer mouse, *Peromyscus maniculatus* b. darker above than below but not sharply bicolor; white-footed mouse, *Peromyscus leucopus*

You discover a mouse with the following characteristics:

- 32 mm in length
- has hair on it tail
- ears that stick out well beyond its fur
- smooth, blended coloration

This mouse is most likely a:

A *Peromyscus leucopus*

B *Microtus ochrogaster*

C *Mus musculus*

D *Peromyscus maniculatus*

8. Using the diagram in Question #7, which mouse shares the most similar DNA coding as the white-footed mouse?

F house mouse

G dear mouse

H woodland vole

J prairie vole

9. Scientists discover a new organism in the rainforest. The new organism is known to have fur, walks on four legs, is a herbivore, stands about one meter, and males of this new species have horns. This organism is most closely related to which of the following?

A *U. maritimus* (polar bear)

B *E. ferus* (horse)

C *A. cervicapra* (antelope)

D *C. niloticus* (crocodile)

10. Two organisms are very different from one another. Organism A is an autotroph, and Organism B is a carnivore. The HIGHEST level of classification difference between these two organisms is:

F phylum

G species

H family

J kingdom

DAY 6 – Biology 10-Day EOC Review **Name _____ Period _____**

Biological Evolution and Classification

A. Phylogeny B. Kingdom C. Species D. Homology E. Hierarchy F. Biogeography G. Natural Selection H. Domains I. Taxonomy J. Autotroph K. Heterotroph	1. _____ an organism that must get its energy from consuming other organisms 2. _____ the most generalized level of biological classification; includes archae, bacteria, and eukarya 3. _____ the study of anatomical, molecular, or developmental similarities between organisms 4. _____ the study if classification of organisms; enables scientists to use a common system of classifying organisms 5. _____ second highest level of classification; includes animals, plants, fungi, and protists 6. _____ an organism that creates its own food, usually through photosynthesis 7. _____ process by which organisms with a certain set of favorable traits survive and reproduce other individuals with the same set of traits 8. _____ geographic distribution of organisms; species living within the same region are more likely to be closely related 9. _____ a classification technique that is based starts with a high level of generalization that increases in specificity and definition 10. _____ the most specific level of classification that defines an individual organism 11. _____ an organism's evolutionary history that indicates how a species "branched" off from other species and genetically distinguished itself

DAY 7 – Biology 10-Day EOC Review **Name _____ Period _____**

Biological Processes and Systems *Readiness TEKS B.10A, B.10B*

1. The scenario below is best described by the interaction of what three body systems?

> Food is chewed in the mouth and swallowed (X), is broken down by water, acids, and enzymes in the stomach (Y), and nutrients are absorbed into the blood (Z).

A X=respiratory system, Y=circulatory system, Z=reproductive system

B X=muscular system, Y=nervous system, Z=immune system

C X=circulatory system, Y=immune system, Z=muscular system

D X=muscular system, Y=digestive system, Z=circulatory system

2. What body function is identified in the process described below?

- *Respiratory System* – mucus in the lungs traps an infectious bacteria cell
- *Immune System* – T-cells attack the bacteria cell
- *Nervous System* – triggers a cough to remove the mucus from the lungs along with the destroyed bacteria

F regulation of body temperature

G absorption of nutrients

H defense

J reproduction

3. A deer hears a predator approaching and begins to run for safety. The deer has primarily engaged what body systems to escape?

A nervous, respiratory, and muscular systems

B muscular, digestive, and immune systems

C respiratory, endocrine, and excretory systems

D muscular, reproductive, and circulatory system

4. Which scenario below best describes the interaction between the endocrine and reproductive system.

F Hormones are produced causing ovulation in a female.

G Muscles are contracted, pushing food from the stomach into the small intestine.

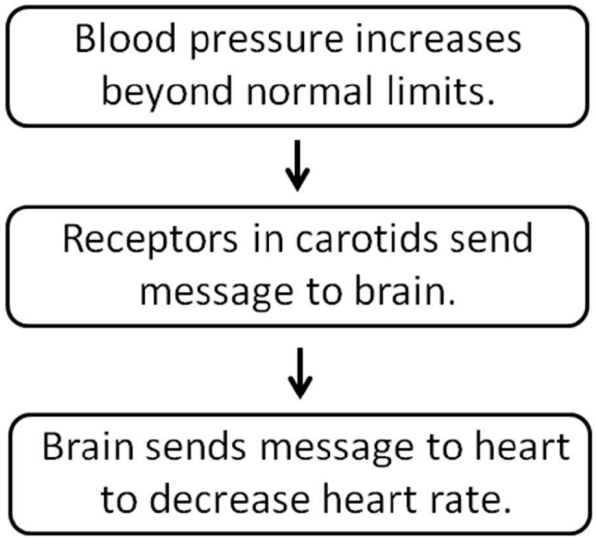
H A male rabbit sees and chases a female rabbit.

J A bird lays her eggs, and protects them from possible predators.

DAY 7 – Biology 10-Day EOC Review **Name _____ Period _____**

Biological Processes and Systems *Readiness TEKS B.10A, B.10B*

5. The diagram below represents an example of how the body regulates itself.



This diagram describes what relationship in body systems?

A The circulatory system and nervous system interact to absorb nutrients.

B The circulatory system and digestive system interact to defend the body from diseases.

C The circulatory system and nervous system interact to maintain homeostasis.

D The nervous system and immune system interact for reproduction.

6. When one side of a plant is not getting enough light, a hormone is produced in the shoot system causing growth on the darker side of the plant. This growth on the darker side causes the plant to bend. This is an example of:

F a plant's ability to reproduce

G uptake of water through the plant's root system

H defense from possible predators

J a plant's ability to respond to its environmental conditions

7. The statement below describes the interaction between what two plant functions?

Hormones are produced in the plant's root system and helps trigger the growth of a pollinated ovule in the shoot system.

A transport and reproduction

B reproduction and defense

C response and transport

D none of the above

DAY 7 – Biology 10-Day EOC Review **Name _____ Period _____**

Biological Processes and Systems

Readiness TEKS B.10A, B.10B

8. Describe how the transport system of a plant is critical to its reproductive function.

I. The plant's root system uptakes water and nutrients and delivers them to the flowering parts of the plant to support growth and development.

II. The shoot system provides structural support to the plant and upholds the flower.

III. Hormones used for seed development are transported through the root system to the shoot system.

F I and II only

G II and III only

H I and III only

J I, II, and III

9. During the fall and winter months, there is not enough light for photosynthesis and a tree will shed its leaves. During this time, it lives off of stored energy. This is an example of:

A defending itself from predators

B preparing for reproduction

C transport of water through the root system

D response to environmental change

10. The statements below describe processes and interactions in what plant function?

Root systems uptake water.

Xylem vessels move water in the shoot system.

Phloem vessels transfer sugars and nutrients throughout the plant.

F defense against diseases

G reproduction

H transport of necessary materials

J response to environmental change

DAY 7 – Biology 10-Day EOC Review **Name _____ Period _____**

Biological Processes and Systems

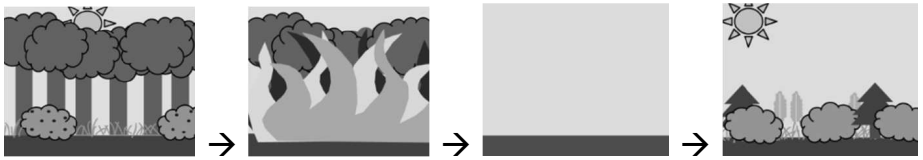
A. Defense *(example)*
B. Muscular System
C. Circulatory System
D. Transport *(example)*
E. Respiratory System
F. Nervous System
G. Endocrine System
H. Skeletal System
I. Shoot System
J. Root System
K. Digestive System
L. Regulation *(example)*
M. Excretory System
N. Seed
O. Immune System

1. _____ system that permits movement of the body and maintains posture; contains skeletal, smooth, and cardiac types of tissue
2. _____ system that exchanges gases in body through the lungs
3. _____ the part of the plant that is above the ground level responsible for light absorption and photosynthesis
4. _____ system that removes both solid and liquid waste from the body
5. _____ a mature, pollinated ovule in a plant
6. _____ system that defends the body against foreign contaminants such as bacteria and viruses
7. _____ T-cells attacking a virus in the lungs and triggering a cough in the nervous system to expel it from the body
8. _____ system that receives, processes, and sends information
9. _____ sugars produced in the leafs moved to other part of the plant through phloem vessels
10. _____ the part of the plant below the ground level that absorbs water
11. _____ system that breaks down and absorbs water and nutrients from food
12. _____ system that is responsible for the production and secretion of hormones
13. _____ system that provide structure for the body
14. _____ body maintaining a steady temperature through a homeostatic process
15. _____ system that delivers necessary gases, water, and nutrients to the body's cells and takes waste to the kidneys

DAY 8 – Biology 10-Day EOC Review **Name _____ Period _____**

Interdependence within Environmental Systems *Readiness TEKS B.11D, B.12A*

1. The sequence of events below best describes what biological concept?



A → B → C → D

A primary ecological succession

B secondary ecological succession

C nitrogen cycle

D homeostasis

2. During the retreat of a glacier, pebbles and bare rock that were under the ice sheet are exposed to the air. What is likely the next event to occur?

F A wide diversity of plants, including trees and shrubs, will begin to grow.

G Pioneer organisms, such as lichen, begin to grow and break down the rocks into soil.

H Herbivores will migrate into the area taking advantage of the new plant growth.

J The rock will remain undisturbed for many decades.

3. Which of the following would not be an opportunity for ecological succession to occur?

A A volcano erupts causing a wide lava flow that covers over 20 square miles.

B A lightning bolt strikes a dry, dead tree causing a devastating forest fire.

C A farmer abandons an agricultural field after many years of cultivating it.

D A large area of trees is cleared for a new housing development.

4. What would you expect to see in an ecosystem that has gone through a full succession for a naturally occurring disaster?

F a small diversity of plants and a few animals

G lots pioneer organisms, such as lichen and mosses

H a wide diversity of plants, including trees and shrubs

J exposed rock with little to no plant growth

DAY 8 – Biology 10-Day EOC Review **Name _____ Period _____**

Interdependence within Environmental Systems *Readiness TEKS B.11D, B.12A*

5. Examine the table below, and place the events in the order of their sequence of ecological succession on a new island created by an undersea volcano.

W	growth of lichens and mosses; plant diversity very low; soil formation
X	increasing plant diversity; small shrubs and tree saplings; grasses growing in soil
Y	decrease in lichens; numerous trees, vines, and shrubs; high plant diversity
Z	barren landscape; cooled lava rocks exposed; little or no soil

A Z → W → X → Y

B Y → Z → Y → X

C Z → Y → W → X

D W → Y → Z → X

6. Before a forest fire, ecologists estimated there were 85 different species of plants and 30 different species of animals living in a five square mile area. However, 20 years after the fire, the number of plant and animal species is 10% higher than before the fire. Which of the following is a likely explanation for this occurrence?

F The fire was not very damaging and allowed many of the plant species to survive.

G The fire increased competition for space and available resources following the disaster.

H The fire caused the few dominant species to increase in population by killing off competitors.

J The fire created new opportunities by decreasing the competition from the dominant species.

7. A hummingbird's bill is long and thin, allowing it to gather nectar deep into flowers. The flowers benefit from the pollination performed by the hummingbird. This relationship is best described as:

A mutualism

B commensalism

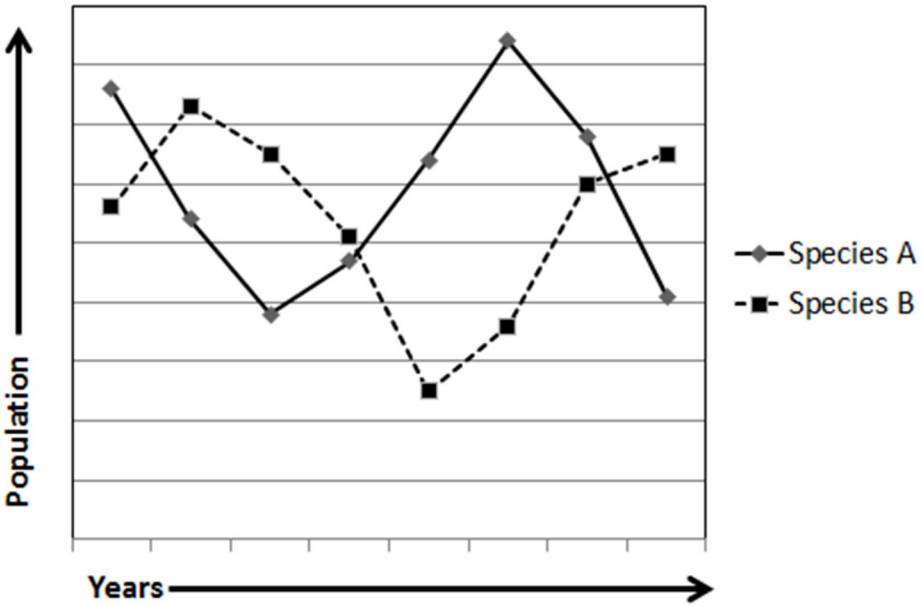
C competition

D neutralism

DAY 8 – Biology 10-Day EOC Review **Name _____ Period _____**

Interdependence within Environmental Systems *Readiness TEKS B.11D, B.12A*

8. What best describes the relationship between Species A and Species B?



F Species A has a commensal relationship with Species B

G Species B preys on Species A.

H Species A and Species B mutually depend on each other.

J Species A is a parasite of Species B.

9. Which two organisms below are most likely to be direct competitors in a dense rainforest?

A white-footed mice and bald eagles

B ants and howler monkeys

C mosses and lichens

D ferns and cyanobacteria

10. In a local state park, rattlesnakes have been seen more often and some hikers have been bitten. Which of the following questions would be the most appropriate research question for ecologists to ask about the rise in rattlesnake population?

F Has a parasite to the rattlesnakes been recently introduced into the ecosystem?

G Has there been a decrease in the population of species that have a mutual relationship with the rattlesnake?

H Has there been a population change in the natural prey of rattlesnakes?

J Are the predators of rattlesnakes increasing in population in the ecosystem?

DAY 8 – Biology 10-Day EOC Review **Name _____ Period _____**

Interdependence within Environmental Systems

A. Predation B. Competition C. Parasitism D. Mutualism E. Ecosystem F. Primary Ecological Succession G. Secondary Ecological Succession H. Pioneer Organisms I. Diversity J. Population K. Commensalism	1. _____ all the biotic and abiotic things, conditions, and interactions in a defined area 2. _____ the number of organisms of the same species that live in a defined area and make up the breeding group 3. _____ building process that occurs when there is no preceding organisms, such as in the retreat of a glacier 4. _____ organisms that are the first to rebuild in ecological succession, such as lichens 5. _____ rebuilding process that occurs after a disruption to an ecosystem, such as a forest fire 6. _____ the number and variety of species and populations in an ecosystem 7. _____ two populations that benefit from one another and often depend on each other for survival 8. _____ two populations that struggle against each other for the same resources in an ecosystem 9. _____ one population captures and feeds on another population 10. _____ one population benefits from another population, often while harming it 11. _____ one population benefits from another population without effecting it

DAY 9 – Biology 10-Day EOC Review **Name _____ Period _____**

Interdependence within Environmental Systems *Readiness TEKS B.12C, B.12F*

1. Using the chart below, what would most likely happen if this specific ocean region was overfished by humans?

Organism	Energy Source	Niche
Sharks	Fish, Seals	Carnivore
Sardines	Algae	Herbivore
Algae	Sun	Producer
Marine Worms	Dead Fish	Decomposer

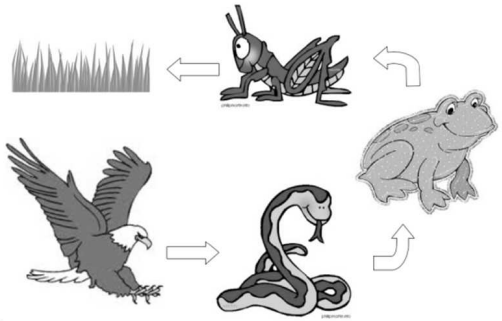
A decrease in the amount of algae

B increase in the shark population

C decrease in the activity of marine worms

D decrease in the available energy from the Sun

2. In the sample food chain below, which organism represents the trophic level containing the lowest percentage of the solar energy converted to food by the grass?



F eagle

G frog

H snake

J grasshopper

3. In 1883, the explosion of Krakatoa created global winter-like conditions for the following two years due to a thin ash cloud that blanketed the Earth. Which of the following statements is not true regarding the effect of Krakatoa on energy flow in the global food web?

A Primary consumers will likely decrease in population due to a smaller number of available producers.

B Omnivores will continue to thrive due to their ability to feed on other animals rather than plants.

C Tertiary consumers will suffer due to a shortage in all food supplies below their trophic level.

D Producers will likely have the largest drop in population.

4. Which of the following trophic levels would represent the largest amount of worldwide biomass?

F tertiary consumers

G secondary consumers

H primary consumers

J producers

DAY 9 – Biology 10-Day EOC Review **Name _____ Period _____**

Interdependence within Environmental Systems *Readiness TEKS B.12C, B.12F*

5. Sustainable food proponents argue that humans should eat less meat and consume more grains and vegetables. They cite the following information in the chart below as a reason for their argument.

To produce one pound of:	Requires:
Beef	7 pounds of grain
Pork	4 pounds of grain
Chicken	2 pounds of grain

The premise of their argument is based on which of the following facts?

A Carnivorous food sources make up a larger amount of biomass than herbivorous food sources.

B The amount of biodiversity increases at each trophic level within a food chain.

C Only a small percentage of the available energy is transferred to next highest trophic level.

D All of the above are true facts that support the argument for sustainable food.

6. How might clearing forest areas for the construction of factories potentially affect the stability of the carbon cycle?

F A greater amount of oxygen will be released into the atmosphere by the construction of the factories while a decreased amount of carbon dioxide is produced by the remaining forest areas.

G A lesser amount of carbon dioxide will be taken in and used for food production by forests while more carbon dioxide is produced by factories.

H The amount of carbon dioxide available for photosynthesis in the remaining forest areas will be decreased due to the construction of factories.

J The amount of oxygen in the atmosphere available for animal respiration will likely increase due to deforestation.

7. Crop rotation will assist in soil stability by:

A maintaining nitrogen levels

B decreasing the activity of decomposers

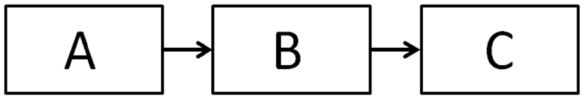
C increasing the number of denitrifying bacteria

D allowing for greater oxygen absorption by the roots

DAY 9 – Biology 10-Day EOC Review **Name _____ Period _____**

Interdependence within Environmental Systems *Readiness TEKS B.12C, B.12F*

8. Freshwater algal blooms are often the result of the overuse of nitrogen-based fertilizers in agriculture. Because of the rapid reproduction and death cycle of algae, these blooms can kill a large number of fish in the ponds, lakes, and rivers. Which of the following statements best complete the flow chart diagram?



F A – Rainfall washes fertilizer into freshwater
B – Nitrogen from fertilizer results in rapid algae reproduction and death
C – Bacteria decomposing dead algae depletes oxygen level in water and fish die

G A – Increased crop growth from fertilizer
B – Crop plants increase carbon dioxide in freshwater and cause algae production
C – Algae decreases the nitrogen gas level in the water and fish die

H A – Rainfall washes fertilizer into freshwater
B – Oxygen levels in freshwater increase resulting in rapid algae production and death
C – The algae produce carbon dioxide in the water and fish die

J A – Fertilizer increases the production of oxygen
B – Oxygen levels in freshwater increase resulting in rapid algae production and death
C – Bacteria decomposing dead algae depletes carbon dioxide level in water and fish die

9. Which of the scenarios described below would likely not cause a long-term negative effect in an ecosystem?

A An erupting volcano results in a major lava and ash flow.

B A leaking septic system releases contaminants into a river.

C A tornado uproots several trees in a forest area.

D A new plant requiring large amounts of available nitrogen in the soil is introduced into an area.

10. Several science students are attempting to determine why a local pond has lost much of its plant and fish population in the summer months. To test their hypothesis, they must measure the thermal energy and dissolved oxygen-level in a sample of water. What are two pieces of lab equipment they will need for these measurements?

F a microscope and a petri dish

G a graduated cylinder and a digital thermometer

H a hot plate and dissecting tools

J a stopwatch and a triple beam balance

DAY 9 – Biology 10-Day EOC Review **Name _____ Period _____**

Interdependence within Environmental Systems

A. Producer
B. Decomposer
C. Consumer
D. Biomass
E. Nitrogen Cycle *(example of)*
F. Herbivore
G. Ecological Pyramid
H. Carnivore
I. Omnivore
J. Trophic Levels
K. Food Web
L. Carbon Cycle *(example of)*

1. _____ classification of organisms by feeding relationships in hierarchal order
2. _____ obtains its food from consuming other animals
3. _____ obtains its food from consuming other plants
4. _____ converted to usable form by lightning and bacteria; plants uptake nitrates from the soil
5. _____ the network of energy sources in an ecosystem
6. _____ obtains its food from consuming both plants and animals
7. _____ creates its own food directly from solar energy through photosynthesis
8. _____ must get its energy by consuming other organisms
9. _____ breaks down the nutrients in dead organisms for its food
10. _____ conversion of atmospheric carbon dioxide to starches and oxygen gas in plants; release carbon dioxide through cellular respiration in animals
11. _____ the total amount of biological matter in a specific trophic level or ecosystem
12. _____ displays the total biomass and energy flow through each trophic level

DAY 10 – Biology 10-Day EOC Review
Readiness Review Game

BIOLOGY EOC JEOPARDY

You will need a projector, computer, and either 4 small white boards or student response pads. A interactive white board will also be helpful, but not required.

1. Divide your students into 4 teams. You can simply number off, 1-4, to determine your groups.

2. Open the file "Jeopardy – Biology EOC Review.htm" on the CD. The game board is an interactive web page.

3. Determine which team will begin. Students on each team will rotate and take turns so that each member has an opportunity to answer.

4. The first student to respond with the correct answer will choose the next category. The teams can keep track of the dollar value points.

5. The team with the highest dollar value at the end of the round wins!