

Biology STAAR EOC BIOLOGY STUDY GUIDE

- 1) Describe the difference between a theory and a hypothesis.
- 2) Define:
 - a. Independent variable
 - b. Dependent variable
 - c. Control
- 3) List the characteristics of living organisms.
- 4) With pictures define the symbiotic relationships.
 - a. Predation
 - b. Parasitism
 - c. Commensalism
 - d. Mutualism
- 5) How much energy is transferred between trophic levels in a food chain?
- 6) Describe what an arrow means in a food chain?
- 7) In an energy pyramid, where would producers be located?
- 8) How is a carrying capacity of an ecosystem affected? What are the limiting factors?
- 9) Which organism is needed to turn nitrogen into a useable form?
- 10) When does secondary succession occur in nature?
- 11) Identify the organisms that would appear first in primary succession.
- 12) Define a climax community.
- 13) The monomer of carbohydrates are:
- 14) Which macromolecule is used for long-term energy storage, insulated the body and cushions organs?
- 15) This macromolecule contains the instructions for making proteins and the genetic information.
- 16) Enzymes are made from which macromolecule?
- 17) Cell wall in plants is made from which macromolecule?
- 18) When we did the Food nutrients Lab, Lugol's Iodine was used to indicate which substance?
- 19) Draw and label the enzyme-substrate complex.
- 20) What happens if enzymes are exposed to extreme temperatures?
- 21) Describe how enzymes work.
- 22) Where does the substrate bind?
- 23) Define denature.
- 24) What is a cell and why is it called the basic unit of structure and function?
- 25) Who was the first person to describe cells? And what did he observe?
- 26) List the 3 parts of the cell theory.
- 27) Describe the difference between prokaryotic and eukaryotic.

- 28) Describe what each of the organelles do in a cell;
- Ribosomes
 - Chloroplasts
 - Golgi Apparatus
 - Lysosomes
 - Mitochondria
 - Nucleus
 - Vacuole
- 29) Identify the difference between a plant cell and an animal cell.
- 30) Define Diffusion:
- 31) Identify what happens in osmosis.
- 32) Describe the structure of the cell membrane.
- 33) In your own words what does the term homeostasis mean?
- 34) How does the structure of the cell membrane help maintain homeostasis?
- 35) Does passive transport require energy to move a substance across the cell membrane?
- 36) Define the key terms
- Hypo -
 - Hyper-
 - Iso
- 37) Draw a picture illustrating the 3 types of solutions.
- Hypertonic
 - Hypotonic
 - Isotonic
- 38) What does the term plasmolysis mean? What does the term turgid mean?
- 39) Write the chemical equation for photosynthesis.
- 40) Describe what occurs during photosynthesis.
- 41) Where does photosynthesis occur?
- 42) Identify what happens during the light-dependent reaction.
- 43) The light independent reaction is also known as the Calvin Cycle, describe where and what occurs during this reaction.
- 44) Where does cellular respiration occur in cells?
- 45) How is the cellular respiration equation compared to the photosynthesis equation?
- 46) Name the 3 parts of cellular respiration and where they occur?
- 47) What is created during the Krebs cycle that is so important for the electron transport chain?
- 48) How many ATP are created during:

- a. Glycolysis
- b. Krebs Cycle
- c. Electron Transport Chain

49) Identify the 2 types of Nucleic Acids.

50) A nucleotide is made up of what 3 parts:

51) DNA was discovered by whom? And who was actually given the Nobel Prize for it?

52) List the 4 nitrogenous bases and which ones pair together.

53) Which bases are:

- a. Purines
- b. Pyrimidines

54) Explain why cells need to be able to replicate DNA.

55) Compare RNA and DNA

	Base	Sugar	Location	Types
DNA				
RNA				

56) Describe what happens during Transcription.

57) Identify what happens during Translation.

58) List in order all parts of the Cell Cycle.

59) If something goes wrong in the Replication of DNA in which part of the cell cycle should it be corrected before the cell moves on and divides?

60) During which phase of mitosis do the chromosomes line up in the center of the cell?

61) During which phase of mitosis does the nuclear membrane disappear and the chromosomes start to condense and become visible?

62) Name the phase that the sister chromatids are being pulled apart toward the opposite poles.

63) How many chromosomes does a human body cell have?

64) Define somatic cells:

65) Explain how the cell theory is supported by mitosis.

66) How would a karyotype help if you were pregnant and wanted to know if your child had a genetic disorder?

67) Mitosis results in 2 _____ cells.

68) Explain what occurs during cytokinesis.

69) What happens in a cancer cell that is different than in a normal cell?

70) Explain the purpose of each of the genes below:

- a. Proto-oncogenes
- b. Tumor suppressor genes

71) In each of your cells how much of the DNA is the same?

72) What causes cells with the same DNA to differentiate?

73) What causes changes in epigenetics?

74) Cells with the exact same DNA are directed to differentiate by chemical signals that cause certain genes to be:

75) Define the following:

a. Exon:

b. Intron:

76) Define gametes:

77) Meiosis results in =

78) Explain what occurs during crossing over in Meiosis?

79) Which phase of Meiosis do pairs of homologous chromosomes move to equator?

80) Identify the phase in which nuclear membrane reforms, cytoplasm divides and 4 daughter cells are formed.

81) Compare mitosis & meiosis:

	Mitosis	Meiosis
In what type of cell does the division take place?		
How many divisions are there?		
How many daughter cells are produced?		
How many chromosomes are produced?		
Are the daughter cells identical or different to the parent cell?		
Does crossing over occur?		

82) Define the following terms:

a. Phenotype:

b. Genotype:

c. Homozygous:

d. Heterozygous:

e. Dominant:

f. Recessive:

83) Create a Punnett square for the following:

B = brown eyes b = blue eyes

A heterozygous father has children with a homozygous recessive mother.

Genotypes:

Phenotypes:

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Genotypes:

Phenotypes:

85) Incomplete Dominant Genes

RR = Red flower WW = White flower

RW = Pink

RR is crossed with WW

How many of the offspring will be RW (pink)?

86) Co-Dominant Genes

BB = Blue feather WW = White Feather feathers BW = Blue with white tipped

BW x BW How many have Blue feathers?
How many have White feathers?
How many have Blue with white tipped feathers?

87) Identify the multiple alleles for blood types:

- a. A blood =
- b. B blood =
- c. AB blood =
- d. O blood =

88) If a mother is AB blood type and has children with a man who is also AB blood type, is it possible for her to have a child who is O blood type?

89) Describe why Charles Darwin is important to biology.

90) Explain how homologous structures are evidence of evolution.

91) In evolution do individuals adapt or does the population adapt and evolve?

92) An adaptation that enables a species to blend in with the environment is called:

93) Explain why the Galapagos Islands were and important part of the development of Natural Selection and Evolution.

94) Structures that have the same function but no evolutionary relationship such as butterfly wing and bird wing are called:

95) How is embryology evidence of evolution?

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