

Name Kurt S. Rowen

Period

Honors Biology
Semester 2
Final Exam Study Guide

*In order to participate in the class study sessions you must complete the study guide. The study guide is due on **Tuesday May 27th**.*

Chapter 11: Introduction to Genetics

Vocabulary:

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|--------------------------|--------------------------|
| • Genetics | • Independent Assortment |
| • Trait | • Incomplete dominance |
| • Allele | • Codominance |
| • Principle of Dominance | • Multiple alleles |
| • Segregation | • Polygenic trait |
| • Gamete | • Homologous |
| • Probability | • Diploid |
| • Homozygous | • Haploid |
| • Heterozygous | • Meiosis |
| • Phenotype | • Tetrad |
| • Genotype | • Crossing-over |
| • Punnett square | |

Objectives:

1. Describe Mendel's studies and conclusions about inheritance.
2. Describe the other inheritance patterns.
3. Contrast the number of chromosomes in body cells and in gametes.
4. Summarize the events of meiosis
5. Contrast meiosis and mitosis

Chapter 12: DNA

Vocabulary:

- Transformation
- Base pairing
- Replication
- DNA polymerase

Objectives:

1. Summarize the process of bacterial transformation.
2. Identify the role of DNA in heredity.
3. Identify the chemical components of DNA.
4. Discuss the experiments leading to the identification of DNA as the molecule that carries the genetic code.
5. Describe the steps leading to the development of the double-helix model of DNA.
6. Summarize the events of DNA replication.

Chapter 13: RNA

Vocabulary:

- RNA
- Messenger RNA
- Transfer RNA
- Polyploidy
- Polypeptide
- Codon
- Anticodon

Objectives:

1. Contrast RNA and DNA
2. Explain the process of transcription.
3. Identify the genetic code and explain how it is read.
4. Summarize the process of translation.
5. Define mutations and describe the different types of mutations.
6. Describe the effects mutations can have on genes.

Chapter 14.1 and 14.2: Human Heredity

Vocabulary:

- Karyotype
- Sex chromosome
- Sex-linked gene
- Nondisjunction
- Pedigree
- Restriction Enzyme

Objectives:

1. Identify the types of human chromosomes in a karyotype.
2. Describe the patterns of the inheritance of human traits
3. Explain how pedigrees are used to study human traits.
4. Summarize the problems caused by nondisjunction.
5. Summarize the methods of DNA analysis

Ch. 14.3 and 15: Genetic Engineering

Vocabulary:

- Restriction enzymes
- Selective breeding
- Hybridization
- Inbreeding
- Transgenic
- Clone
- DNA fingerprinting

Concepts:

1. Describe the techniques used to study human DNA.
2. Explain the purpose of selective breeding.
3. Explain how transgenic organisms can be useful to humans.
4. Describe the benefits of genetic engineering as they relate to agriculture & industry.
5. Summarize the process of DNA fingerprinting and provide examples of how it is used.
6. Identify some of the pros and cons of genetically modified foods.

Ch. 16 & 19.1: Darwin's Theory of Evolution

Vocabulary:

- Evolution
- Fossil
- Artificial selection
- Natural selection
- Homologous structure
- Analogous structure
- Adaptation Vestigial structure
- Fitness
- Half-life

Objectives:

1. State Charles Darwin's contribution to science.
2. Describe the three patterns of biodiversity noted by Darwin.
3. Describe Lamarck's explanation of how organisms evolve.
4. What do fossils reveal about ancient life? How do we determine how old fossils are?
5. Describe the conditions under which natural selection occurs.
6. Explain the principle of common descent.
7. Explain how geologic distribution of species relates to their evolutionary history.
8. Describe what homologous structures suggest about the process of evolutionary change.

Ch. 18: Classification

Vocabulary:

- Binomial nomenclature
- Genus
- Species
- Systematics
- Taxon
- Family
- Order
- Class
- Phylum
- Kingdom
- Phylogeny
- Clade
- Monophyletic group
- Cladogram
- Derived character
- Domain
- Bacteria
- Archaea
- Eukarya

Objectives:

1. Describe how living things are organized to study.
2. Describe how to make and interpret a cladogram.
3. Name the six kingdoms of life as they are now identified.
4. Describe the three-domain system of classification.