**BIOLOGY 2022-23 January 30, 2023**

**Today’s Agenda (Day 98)**

1. HOUSEKEEPING ITEMS

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1. Homework Check:

🡪 Science Fair – Updated Intro

🡪 Chapter 13 Reading Guide

1. Class Activity:

🡪 Day 21: Science Fair

\*CONT’D - **Begin Week 2 of your experiment**

🡪DAY 1: Chapter 13 PPT Review

1. **Section 13.1 – Applied Genetics**
2. Section 13.2 – DNA Technology
3. Section 13.3 – The Human Genome

HOMEWORK:

* READ: Chapter 13 – Genetics and Biotechnology
* COMPLETE:
* **STUDY**: Chapter 13 Vocabulary and Test

REMINDERS:

* ~~Chapter 13 Reading Guide – Jan. 30~~
* **QUIZ: Ch 13 Vocabulary 🡪 Tues, Jan. 31**
* **TEST: Ch 13🡪 Thursday, Feb. 2**

**CHAPTER 13 VOCABULARY**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Bioinformatics | Cloning | DNA fingerprinting | DNA ligase | DNA microarray |
| Gel electrophoresis | Gene therapy | Genetic engineering | Genome | Genomics |
| Haplotype | Inbreeding | Pharmacogenomics | Plasmid | Polymerase chain reaction |
| Proteomics | Recombinant DNA | Restriction enzyme | Selective breeding | Single nucleotide polymorphism |
| Test cross | Transformation | Transgenic organism |  |  |

Chapter 14 – The History of Life

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Cambrian explosion | Endosymbiont theory | Eon | Epoch | Era | Fossil |
| Geologic time scale | Half-life | K-T boundary | Law of superposition | Paleontologist | Period |
| Plate tectonics | Radiometric dating | Relative dating | Spontaneous generation | Theory of biogenesis |  |

Chapter 15 – Evolution

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Adaptive radiation | Allopatric speciation | Analogous structure | Ancestral trait | Artificial selection | Biogeography |
| Bottleneck | Camouflage | Derived trait | Directional selection | Disruptive selection | Embryo |
| Evolution | Fitness | Founder effect | Genetic drift | Gradualism | Hardy-Weinberg principle |
| Homologous structure | Mimicry | Natural selection | Post-zygotic isolating mechanism | Pre-zygotic isolating mechanism | Punctuated equilibrium |
| Sexual selection | Stabilizing selection | Sympatric speciation | Vestigial structure |  |  |

**BIOLOGY 2022-23 READING GUIDE**

**Chapter 13 Genetics & Biotechnology**

DIRECTIONS: Refer to your textbook to respond to the following questions.

1. Describe how genetic engineering was used in regards to GFP.
2. What is a genome?
3. What are restriction enzymes used for?
4. In gel electrophoresis, why is an electric current necessary?
5. How is the pattern created by gel electrophoresis achieved?
6. How is recombinant DNA produced?
7. Explain the process of transformation.
8. Why is DNA sequencing useful to scientists?
9. What is polymerase chain reaction (PCR) used for?
10. Describe the three main steps involved in PCR.
11. How are transgenic organisms created?
12. What was the goal of the Human Genome Project?
13. How was one continuous human genome sequenced?
14. The protein coding regions of DNA are virtually identical in all humans. How does DNA fingerprinting distinguish between people?
15. What is the amino acid sequence of a start codon? The 3 stop codons?
16. What is a SNP?
17. What must be true for a variation to be considered a SNP?
18. Describe the HapMap Project.
19. List three disease of how gene therapy may someday be used to cure them.
20. Compare and contrast genomics and proteomics.