

Honors Biology Syllabus - Unit 4: Cellular Reproduction

Essential Questions:

1. How do cells reproduce themselves?
2. How does the formation of sex cells ensure that each sex cell is unique?
3. How does a single fertilized egg develop into an adult organism?

Required Reading:

- Chapter 5
- Section 6.1

Classwork:

- "What Are Chromosomes?" - Videos & Questions
- Cell Division Sequencing Challenge
- Cell Cycle Station Activity
- "A Stem Cell Story" Video & Questions
- Understanding Cancer Online Activity
- Cell Cycle and Cancer Overview Worksheet
- Comparing Mitosis and Meiosis Writing Task

Homework:

- Unit 4 Vocabulary Checklist

Unit Exam (60 pts):

- 30 Multiple Choice Questions (30 pts - 1 pt per question)
- 6 Short Answer Questions (30 pts - 5 pts per question)

Schedule: (See "Weekly Outline" on course website for potential adjustments)

Date	Lesson Topics	Assignments
Friday 11/15	-Unit 3 Exam Corrections -Distribute Unit 4 Vocabulary Checklist	-Unit 4 Vocabulary Checklist (Due Monday, 12/09) Homework -Work on Lecture Review (Due Monday, 12/02)
Monday 11/18	-New Seating Arrangement -Distribute Unit 4 Syllabus -"What Are Chromosomes?" - Videos & Questions	-“What Are Chromosomes?” - Videos & Questions (Due Tuesday, 11/19)
Tuesday 11/19	-Cell Division Sequencing Challenge	-Cell Division Sequencing Challenge (Due in class) Homework -Read 5.1 & Complete Vocab Checklist (Due Thursday, 11/21)
Block Day 11/21	-Notes: Cell Cycle Diagram -Cell Cycle Station Activity	-Cell Cycle Station Activity (Due in class) Homework -Read 5.2 & Define Key Terms on Vocab Checklist (Due Friday, 11/22)
Friday 11/22	-Notes: Cell Division and Mitosis	Homework -Work on Lecture Review (Due Monday, 12/02)
Monday 11/25	-Space Race: Cell Cycle & Mitosis Review	Homework -Read 5.3 & Define Key Terms on Vocab Checklist (Due Tuesday, 11/26)
Tuesday 11/26	-Understanding Cancer Online Activity	-Understanding Cancer Online Activity (Due in class) Homework -Finish Lecture Review (Due Monday, 12/02)
Wednesday-Friday 11/27-11/29	-No School - Thanksgiving Break	
Monday 12/02	-Fill Out Test Preparation Checklist -The Eukaryotic Cell Cycle and Cancer	-Cell Cycle and Cancer Overview Worksheet (Due Tuesday, 12/03) Homework -Read 5.4-5.5 & Define Key Terms on Vocab Checklist (Due Tuesday, 12/03)
Tuesday 12/03	-“A Stem Cell Story” Video & Questions	-“A Stem Cell Story” Video & Questions (Due Thursday, 12/05) Homework -Read 6.1 & Define Key Terms on Vocab Checklist (Due Thursday, 12/05)

Date	Lesson Topics	Assignments
Block Day 12/05	-Discuss Sexual Life Cycles -Homologous Shoes! -Comparing Mitosis and Meiosis Writing Task	-Comparing Mitosis and Meiosis Writing Task (Due in class)
Friday 12/06	-Discuss Final Exam Review Sheet -Unit 4 Exam Review Game	Homework -Finish Unit 4 Vocabulary Checklist (Due Monday, 12/09) -Study for Unit 4 Exam
Monday 12/09	-Unit 4 Exam (Free Response)	
Tuesday 12/10	-Unit 4 Exam (Multiple Choice)	
Block Day 12/12	-Unit 4 Exam Corrections -Discuss Cancer Treatment	-Study for Final Exam
Friday 12/13	-Video: Can We Eat to Starve Cancer?	-Study for Final Exam
Monday 12/16	-Discuss Book Review Quarterly Assignment -Review for Final Exam	-Study for Final Exam
Tuesday 12/17	-Review for Final Exam	-Study for Final Exam
Wednesday- Friday 12/18-12/20	-Final Exams -Wednesday - Hours 1 & 2 -Thursday - Hours 3, 4, & 5 -Friday - Hours 6 & 7	-Work on Book Review (Due Monday, 03/02)

Unit 4: Cellular Reproduction Learning Targets

- Describe the changes that DNA goes through during the cell cycle.
 - Describe the structure of a chromosome.
 - Distinguish between haploid and diploid cells.
 - Name the stages of the cell cycle and explain what happens during each stage.
- Develop a model to illustrate how the process of mitosis produces two genetically identical daughter cells.
 - Explain why there are both upper and lower limits to cell size.
 - Describe how cell reproduction contributes to repair and to growth.
 - Summarize the major events that occur during each phase of mitosis.
- Identify the role of stem cells in the growth and development of living organisms.
 - Identify the defining characteristics of stem cells.
 - Explain why cell differentiation is an important part of the development of a multicellular organism.
 - Distinguish between embryonic stem cells and adult stem cells.
- Explain how the cell cycle is regulated and predict possible outcomes when there is a failure in regulation.
 - Compare benign and malignant tumors.
 - Describe how inheriting certain mutations can increase the risk for cancer.
 - Explain how mutations to genes that play a role in regulating the cell cycle can lead to cancer.
- Differentiate between sexual and asexual reproduction.
 - Describe how homologous chromosomes are alike and how they differ.
 - Compare and contrast mitosis and meiosis.