**BIOLOGY 2022-23 December 1, 2022**

**Today’s Agenda (Day 63)**

1. HOUSEKEEPING ITEMS

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1. Homework Check:

🡪 Chapter 9 Reading Guide

🡪 Chapter 10 Vocabulary

1. Class Activity:

🡪 VIDEO: Osmosis Jones – To be cont’d at a later date

🡪 **QUIZ: Ch 9 AND 10 Vocabulary**

**\*Go to** [**www.socrative.com**](http://www.socrative.com) **🡪 enter room “MSBBIOLOGY” 🡪 enter ID #**

🡪DAY 5: Chapter 9 PPT Review

1. **Section 9.3 – Cell cycle regulation**

🡪DAY 1: Chapter 10 PPT Review

1. **Section 10.1 – Meiosis**
2. **Section 10.2 – Mendelian Genetics**
3. Section 10.3 – Gene Linkage and Polyploidy

HOMEWORK:

* READ: Chapter 9 – Cellular Reproduction
* COMPLETE:
* **STUDY**: Chapter 9 & 10 Vocabulary Quiz and Chapter Test

**CHAPTER 9 VOCABULARY**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Anaphase | Apoptosis | Cancer carcinogen | Cell cycle | Centromere |
| Chromatin | Chromosome | Cyclin | Cyclin-dependent kinase | Cytokinesis |
| Interphase | Metaphase | Mitosis | Prophase | Sister chromatid |
| Spindle apparatus | Stem cell | Telophase |  |  |

**CHAPTER 10 VOCABULARY**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Allele | Crossing over | Diploid | Dominant | Fertilization |
| Gamete | Gene | Genetic recombination | Genetics | Genotype |
| Haploid | Heterozygous | Homologous chromosome | Homozygous | Hybrid |
| Law of independent assortment | Law of segregation | Meiosis | Phenotype | Polyploidy |
| Recessive |  |  |  |  |

REMINDERS:

* **QUIZ: Ch 9 AND 10 Vocabulary – ~~Nov. 29~~ Dec. 1**
* **TEST: Ch 9 🡪 ~~Dec. 1~~ Dec. 6**
* **TEST:** **Ch 10 🡪 Dec. 8**
* **MIDTERM EXAM: Ch 1 - 10**

**BIOLOGY 2022-23 READING GUIDE**

**Chapter 9 - Cell Reproduction**

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

1. What is the key factor that limits cell size?
2. Why is it a major problem for a cell if it gets too big (use surface area and volume in your explanation)?
3. What are the benefits to a cell staying small?
4. How does the need for signaling proteins in a cell limit cell size?
5. When a cell reaches its size limit, what are the only two things a cell can do?
6. What happens during **interphase**?
7. What happens during **mitosis**? What happens during **cytokinesis**?
8. What determines how long the cell cycle takes?
9. Describe what happens during G1, S, and G2 stages of interphase.
10. How do prokaryotic cells reproduce?
11. What is **chromatin**? What happens to chromatin in prophase?
12. Label the **chromatids** and **centromere** in the picture below. Describe what both structures do.

A group of yellow flowers

Description automatically generated with low confidence

1. What is a **centriole**?
2. Label the stages of mitosis shown here.

Diagram

Description automatically generated

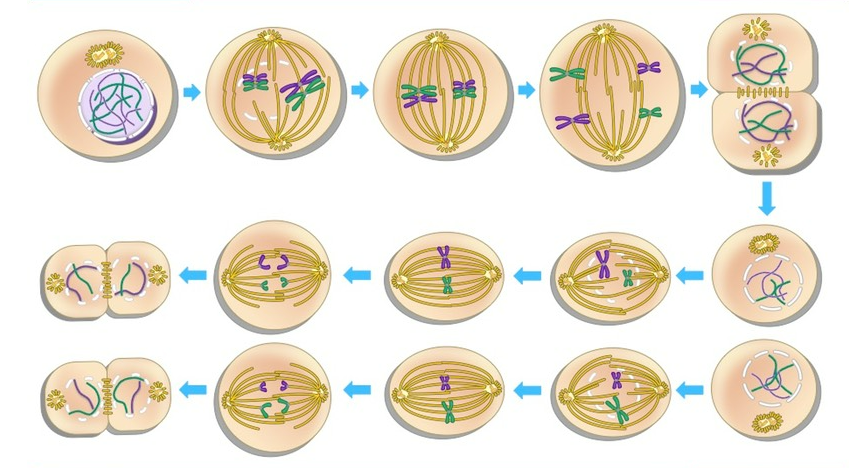
1. Describe the main feature of each of the phases of mitosis: **prophase**, **metaphase**, **anaphase**, and **telophase**.
2. Compare and contrast cytokinesis in animal cells and plant cells.
3. What monitors a cell’s progress from phase to phase during the cell cycle?
4. Explain the different checkpoints that occur during the cell cycle.
5. How is **cancer** related to the cell cycle?
6. List three **carcinogens**.
7. Why does the risk of cancer increase with age?
8. What is **apoptosis**? Give an example.
9. What is so unique about **stem cells**?
10. Compare and contrast embryonic stem cells and adult stem cells.
11. Describe a possible application for stem cells.

**BIOLOGY 2022-23 READING GUIDE**

**Chapter 10 – Sexual Reproduction & Genetics**

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

1. What are **homologous chromosomes**. Give an example of a trait found on homologous chromosomes.
2. What are **gametes**? What is **fertilization**?
3. What are the only haploid cells found in humans?
4. How do gametes form? Describe this process.
5. What does Meiosis I start with? What does Meiosis II end with?
6. What is the unique step in prophase 1?
7. What happens in metaphase I that is unique to meiosis?
8. DRAW the picture below and label each phase of meiosis that you have drawn.



1. Describe one event that is happening for each of the pictures you just drew.
2. Compare and contrast **mitosis** and **meiosis**.
3. How does meiosis provide **variation**?
4. What advantage do organisms have that reproduce **sexually** versus **asexually**?
5. What is **heredity**? Who carried out the first studies in heredity?
6. How did Mendel perform **cross-pollination** of his pea plants? How did he prevent self-**fertilization**?
7. Describe the results Mendel got when he crossed pure-breeding yellow seed plants with pure-breeding green seed plants crossed their offspring?
8. How did Mendel determine which trait was **dominant** and which was **recessive**?
9. Why did the green-seed form of the trait not appear in the F1 generation?
10. What does **homozygous** mean? What does **heterozygous** mean? Give an example of each.
11. What it a **phenotype**? What is a **genotype**? Give two possible genotypes for a yellow seed phenotype.
12. What is the **law of segregation**?
13. Yy could be described as \_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_.
14. Why were Mendel’s first experiments called **monohybrid crosses**?
15. How is the **law of independent assortment** related to meiosis?
16. What is the genotype ratio for a Tt to Tt cross?
17. What is the phenotype ratio for a Tt to Tt cross?
18. What is meant by “**linked genes**”?
19. What do **chromosome maps** show?
20. Compare and contrast **polyploidy** in humans and plants.