Name _____ Period _____

Date _____

AP: CHAPTER 12: CELL CYCLE

1. What is meant by the concept that cells go through a cell cycle?

_____

_____

2. What are the key roles of cell division?

_____

_____

3. What is the significance of chromosome replication?

_____

_____

4. Sketch and label replicated chromosomes.

5. List the phases of the cell cycle with a brief description of what occurs in each phase.

a. _____

b. _____

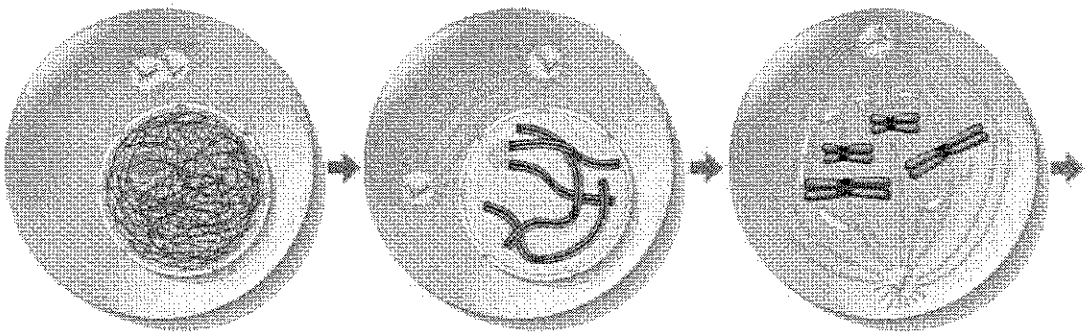
c. _____

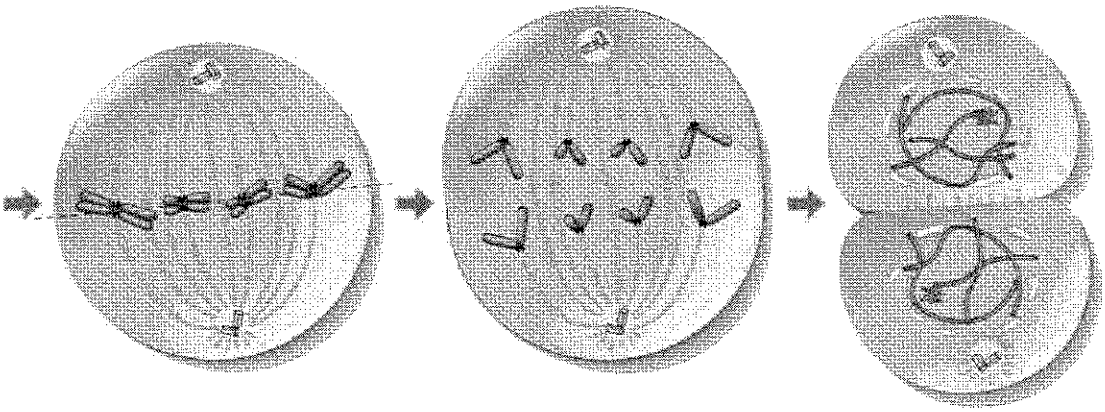
d. _____

e. _____

Name _____

6. Label the stages and key features of each stage.





Name _____

7. How does the spindle apparatus distribute chromosomes to the daughter cells?

_____

_____

8. What is the role of the kinetochores and the microtubules?

_____

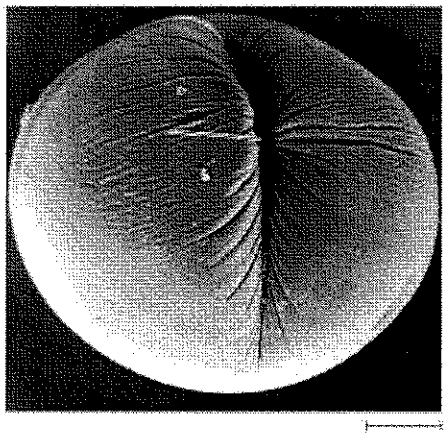
_____

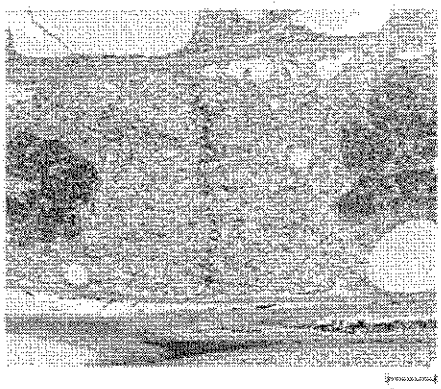
9. How does cytokinesis differ in animal and plant cells? Label the diagrams below.

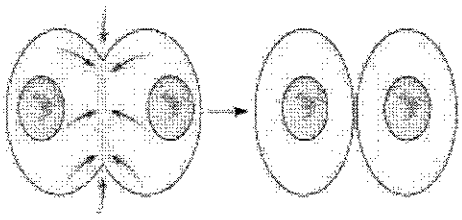
_____

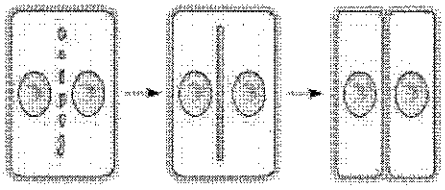
_____

_____









Name _____

10. Eukatyotic mitosis is thought to have evolved from _____

11. Why is the regulation of the cell cycle critical to normal cells?

_____

_____

12. What is the G1 checkpoint and where does it fit into the cycle?

_____

_____

13. What evidence is there that regulation is chemical in nature?

_____

_____

_____

14. Identify the role of the following in the cell cycle clock:

a. Kinase _____

_____

b. Cyclin _____

_____

c. CDKs _____

_____

15. Describe the mechanism for regulating the passage of the cell into anaphase.

_____

_____

Name _____

16. Describe what triggers mitosis from G2.

17. What is the role of ubiquitin?

18. Describe a model for an external signal for growth.

19. What happens when cancer develops?

20. What is the role of p53?

Name _____ Period _____

Date _____

AP: CHAPTER 16: THE MOLECULAR BASIS OF INHERITANCE

1. After Morgan and fellow scientists developed the Chromosomal Theory of Inheritance, the search was on for the chemical mechanism of inheritance. What are the two components of the chromosome?

_____

2. From initial logic, which component would be the most likely candidate for the genetic material and why?

_____

_____

3. What did Griffith, Avery, and others accomplish with bacteria?

_____

_____

4. Define transformation. _____

_____

5. What did the experiments done by Alfred Hershey and Martha Chase show?

_____

_____

6. What are Chargaff's rules?

_____

_____

7. If a species has 35% adenine in its DNA, determine the percent of the other three bases.

_____

Name _____

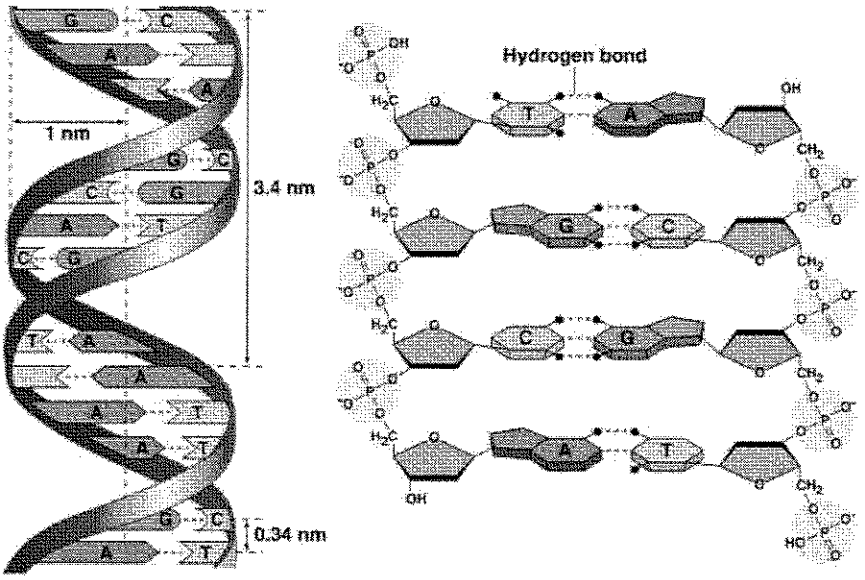
8. What was the role of Maurice Wilkins and Rosalind Franklin in determining the structure of DNA?

_____

_____

_____

9. Use the diagram to describe the structure of DNA. Include several comments.



(a) Key features of DNA structure

(b) Partial chemical structure

10. What is the advantage of the double stranded aspect of the DNA? _____

_____

_____

11. Which model of DNA replication is accepted? _____

_____

Name _____

12. What happens at the DNA replication fork?

_____

_____

13. Make a list of the enzymes involved in replication and their role.

_____

_____

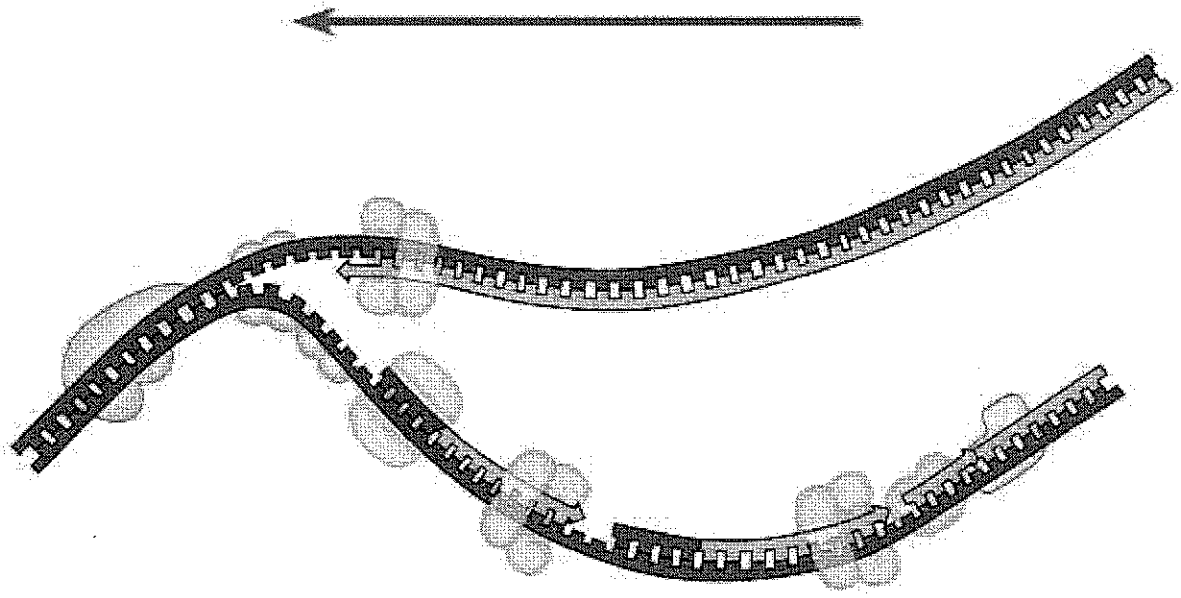
_____

14. Why does the DNA have to add nucleotides in the 5' to 3' direction?

_____

_____

15. Label the diagram of DNA replication. Include the directions and the terms.



Name _____

16. Describe the "priming of the DNA" before replication. _____

17. List some of the steps involved in DNA repair. _____

18. What is the problem that occurs at the ends of the chromosome during replication?

19. What is a telomere and its role in cell division. _____

20. Why was there no selection pressure for prokaryotes to evolve a telomere-like solution on their chromosome? _____

21. Why is telomerase an active area in cancer research? _____