Name _____ Due date: _____

DNA and the Cell Cycle

Nucleic acids

1. The two types are nucleic acids are _____ and _____, _____ contains an organism's instructions for making proteins, and _____ aids in the process of protein synthesis.
2. DNA stands for _____
3. RNA stands for _____
4. Identify three differences between DNA and RNA

   _____

   _____

   _____
5. The building blocks of nucleic acids are _____
6. These building blocks have _____ parts. **Draw** and **label** these parts below:

7. DNA has the shape of a _____. The four nitrogenous bases found in DNA are:

   _____ _____

   _____ _____
8. What are the base pairing rules for DNA?

   _____

9. Describe DNA replication in three steps

_____

_____

_____

10. In the space below **draw** an illustration of DNA replication

Cell cycle

11. _____ is the period of cell growth that occurs between cell divisions. During this time the DNA exists as uncoiled strands called _____. Before the cell divides the DNA _____, or makes a copy of itself. **Draw** and **label** this stage below.

12. Cell division has 2 parts

    a) Mitosis: _____

    b) Cytokinesis: _____

13. Draw and label the four phases of mitosis in an animal cell. Be sure to label all of the important parts of the cell and provide a brief description of the key events that occur in each phase.

_____

_____

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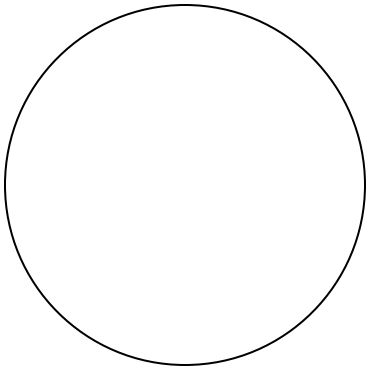

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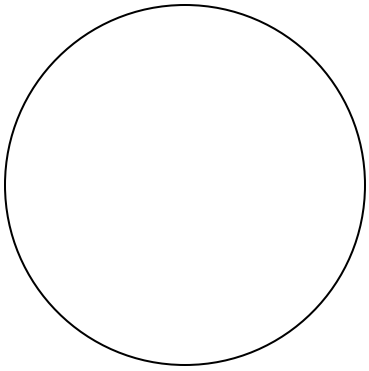

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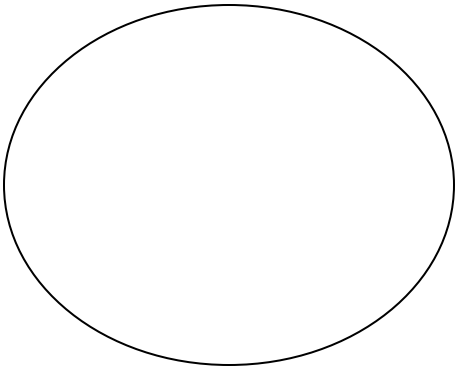

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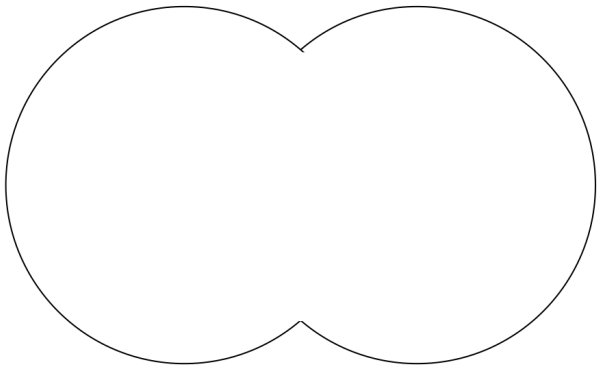


14. Describe two ways that plant cell mitosis and animal cell mitosis differ.

_____

_____

15. Mitosis always yields the same result. Describe the result, and explain the 3 reasons why this type of cell division is valuable to organisms.

_____

_____

_____

16. During cell division, two processes take place, the division of the nucleus _____ and the division of the cell membrane _____. Explain what would happen if only the first process occurred:

_____

_____

17. Define cancer

_____

_____

18. Explain why cancer is a “spreading disease”

_____

_____

Asexual reproduction

19. Define asexual reproduction

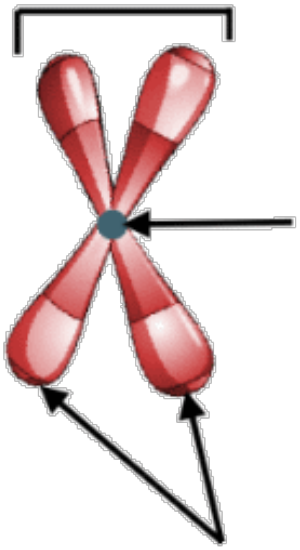
_____

20. List two processes involved in asexual cell division:

_____

_____

21. Label the following diagram



(Draw chromatin above)

22. In non dividing cells, DNA exists in a mass of thin, twisted thread called _____

23. Right before cell division the _____ makes a copy of itself or

_____ it then shortens, thickens and changes into a rod like structure called

_____

24. List 3 benefits of vegetative propagation

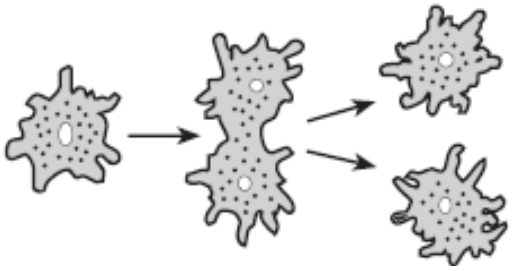
_____

_____

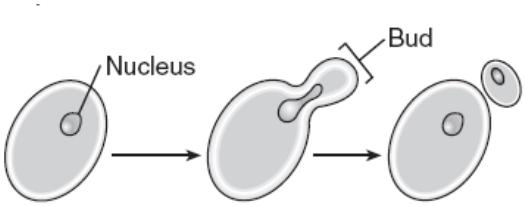
_____

_____

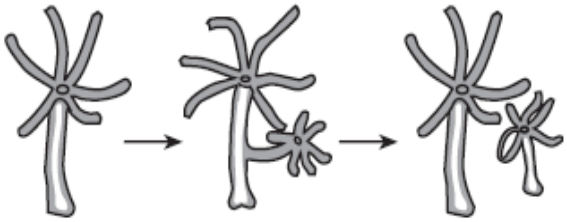
1. _____
   a. _____
      _____
      _____
   b. Examples: ameba, bacteria



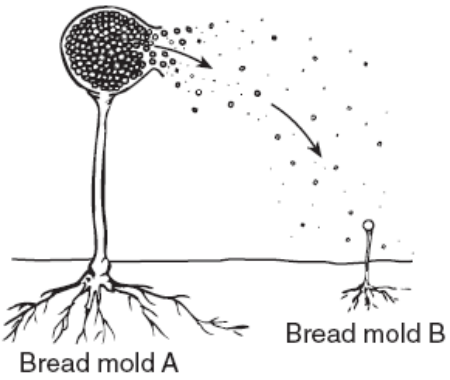
2. _____
   a. _____
      _____
   b. Bud gets smaller portion
   c. May separate or remain attached and form a colony
   d. Example: yeast cells



3. _____
   a. Outgrowth from the body of parent that develops into a complete organism
   b. May detach: hydra
   c. May remain attached: colony of sponges or coral



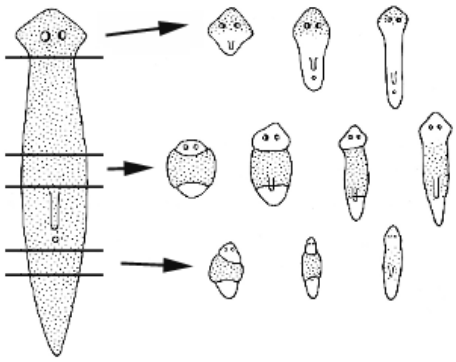
4. _____
   a. Specialized cells are released by parents
   b. Enclosed in protective capsules
   c. Develop into a new individual when environmental conditions are favorable
   d. Example: bread mold



5. _____

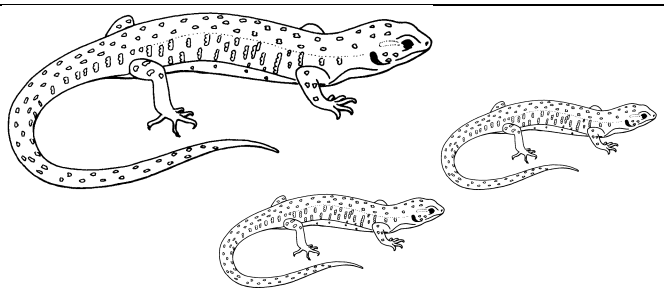
   e. Development of lost parts or growth of an entire new organism from part of original organism

   f. Examples: starfish & planaria



6. _____

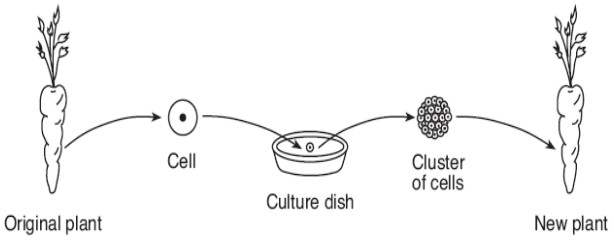
   g. females produce eggs without male sperm. (bees, ants, some frogs)



7. _____

   h. plants grow from undifferentiated leaves, roots or stems

   i. identical to parent plant



8. _____

   j. Cut stem or bud from a plant and join to closely related plant

   k. Ex: apples