

Name: _____

Date: _____ Core: _____

Duplicate and Divide

Show What You Know

1. Cells go through the _____ as organisms grow or as they replace cells.
2. There are two parts to the cell cycle, _____ and _____.
3. When a cell is carrying out the cell processes, growing larger, and duplicating (doubling) the hereditary material—chromosomes, it is in _____. A cell will spend _____% of its life here.
4. During _____, the nucleus and the cytoplasm of a cell divide and the two resulting cells contain the same hereditary information and the same number of chromosomes as the original cell.
5. Mitosis has four stages: _____, _____, _____, and _____.
6. The number of _____ is specific to the type of organism, they always occur in pairs, are found in the nucleus, and store all the hereditary information for that organism. For a human...this number is _____. They are made of coiled up, densely packed _____.
7. Each individual trait is determined by a tiny section on a chromosome which called a _____.
8. The processes that take place during the cell cycle ensure that each newly produced **body** cell will have the _____ number of chromosomes and that the traits of the organism will not be lost.
9. When male and female **sex** cells are produced, a different process takes place called _____.
10. The purpose of meiosis is to produce cells with _____ the number of chromosomes to be passed from a parent to an offspring.
11. Body cells with the full number of chromosomes are called _____ and sex cells with half the number of chromosomes are called _____.
12. Animal cells will _____ apart from one another during telophase because of their flexible cell membrane. Plant cells have to form a _____ during telophase because their cell walls are too rigid. Another difference between plant and animal cell mitosis is the formation of the _____ during prophase...only animal cells form these.
13. Exact copies of chromosomes (sister chromatids) are held together by a _____.
14. Final separation of the cytoplasm occurs following telophase and after the nuclear membranes reappear. This is the result of two new identical cells and called _____.

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Practice: Answer the following questions based on what you have learned.

****A chicken has 78 chromosomes in all their body cells****

- 1) How many chromosomes in each new cell after mitosis? _____
- 2) How many chromosomes in each new cell after meiosis? _____
- 3) How many total chromosomes would there be during prophase? Explain your answer.

- 4) How many total chromosomes would there be in each individual cell after mitosis? Explain your answer.

- 5) If a female chicken creates an egg (specialized sex cell), what cell division process will be used to make this type of cell inside her body and how many chromosomes will be inside the nucleus of that egg?

- 6) If a chicken lays a fertilized egg (offspring), how many total chromosomes will the baby chick have in each of its body cells? Explain your answer—draw a picture to help you if necessary!

Application. Which stages of the cell cycle are represented below?










