

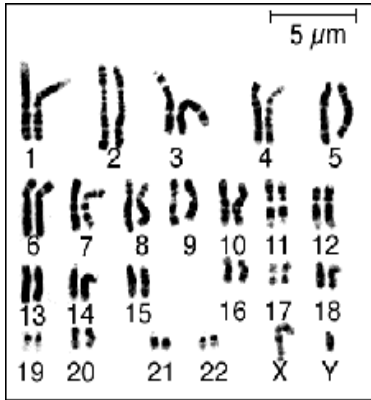
Chromosome, Mitosis, & Meiosis Review

Chromosomes

1. Match the following:

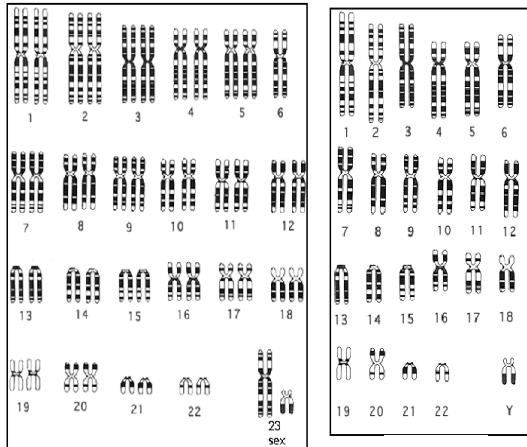
- | | |
|---|----------------------|
| _____ Loose strands of DNA & protein | a. Chromosome |
| _____ Condensed form of DNA | b. Centromere |
| _____ Together, these make up equal parts of a chromosome | c. Chromatin |
| _____ The point at which two chromatids are joined | d. Sister Chromatids |

2. Examine the karyotype below to answer the next questions.



- What is the gender of this person? _____
- How many pairs of chromosomes are there? _____
- How many chromosomes can be found in:
 - somatic cells? _____
 - egg cells (of this species)? _____
 - the gametes? _____
 - cells made by mitosis? _____
 - nerve cells? _____
 - diploid cells? _____
 - haploid cells? _____
 - sperm cells? _____

3. Use the pictures below to answer the next set of questions. Does the statement describe karyotype A, B, both A & B, or neither?



- I could be from a diploid cell.
- I could be from a sperm cell.
- I could be from a skin cell.
- I could be from an egg cell.
- My chromosomes were inside a nucleus.
- I am from a female.

4. Mr. and Mrs. Robinson are expecting a child, but their karyotype shows an abnormality in chromosome pair 23 (all other chromosomes appear normal). What is the notation for this karyotype?



Mitosis & Meiosis

5. Identify each of the following stages:

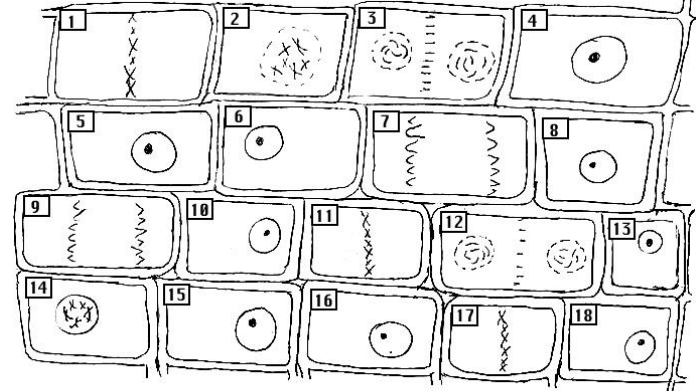


A B C D E

6. Using the letters from the picture above, place the steps in the correct order of the cell cycle.

1: _____ 2: _____ 3: _____ 4: _____ 5: _____

7. Examine the 18 drawings of cells below. Write the letter of the stage of the cell cycle in the space below. Choices: Interphase (I), Prophase(P), Metaphase(M), Anaphase(A), Telophase(T)



1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18

8. During which stage of the cell cycle do the following events take place?

Choices: (I) Interphase, (P) Prophase, (M) Metaphase, (A) Anaphase, (T) Telophase

- _____ Chromosomes are split in half with each chromatid moving towards one end of the cell
- _____ DNA created, or duplicated
- _____ Nucleus **re**forms
- _____ Chromatin winds into chromosomes
- _____ G1, S, G2 stages occur
- _____ Spindle fibers form
- _____ Nerve cells would transmit signals to and from the brain
- _____ Spindle fibers attach to centromeres of chromosomes chromosomes
- _____ Cell performs its normal functions
- _____ Additional mitochondria, lysosomes, golgi bodies, etc. are formed
- _____ Spindle fibers pull chromosomes to middle of the cell
- _____ Nucleus dissolves
- _____ Cell enlarges
- _____ In meiosis I, synapsis & crossing over occur

9. Mitosis creates which cells? Circle all that apply.

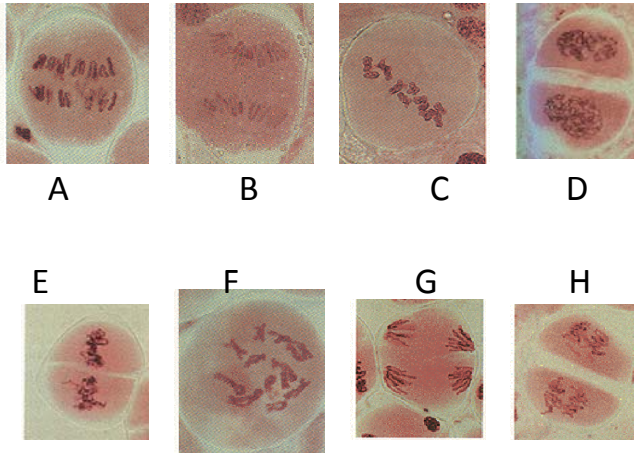
- Skin Nerve Blood Egg Sperm Somatic Brain

10. Meiosis creates which cells? Circle all that apply.

- Skin Nerve Blood Egg Sperm Somatic Brain

11. In the space to the right, place the steps of meiosis in the correct order; label each stage as well.

Number 1 has been completed for you.



- 1: F- Prophase I _____
- 2: _____
- 3: _____
- 4: _____
- 5: _____
- 6: _____
- 7: _____
- 8: _____

12. Using the diagram in the previous problem, use the appropriate letter to identify the stages below:

- _____ Crossing over of homologous chromosomes occurs
- _____ Homologous chromosomes (tetrads) are separated
- _____ Sister chromatids move to opposite ends of the cell
- _____ Homologous chromosome pairs line up in the middle of the cell
- _____ Synapsis Occurs (tetrads are formed)

13. Meiosis differs for males and females. Write the term for the each of the following:

- a. Production of egg cells in female ovaries _____
- b. Production of sperm cells in male testes _____

14. Compare and contrast Mitosis and Meiosis

