

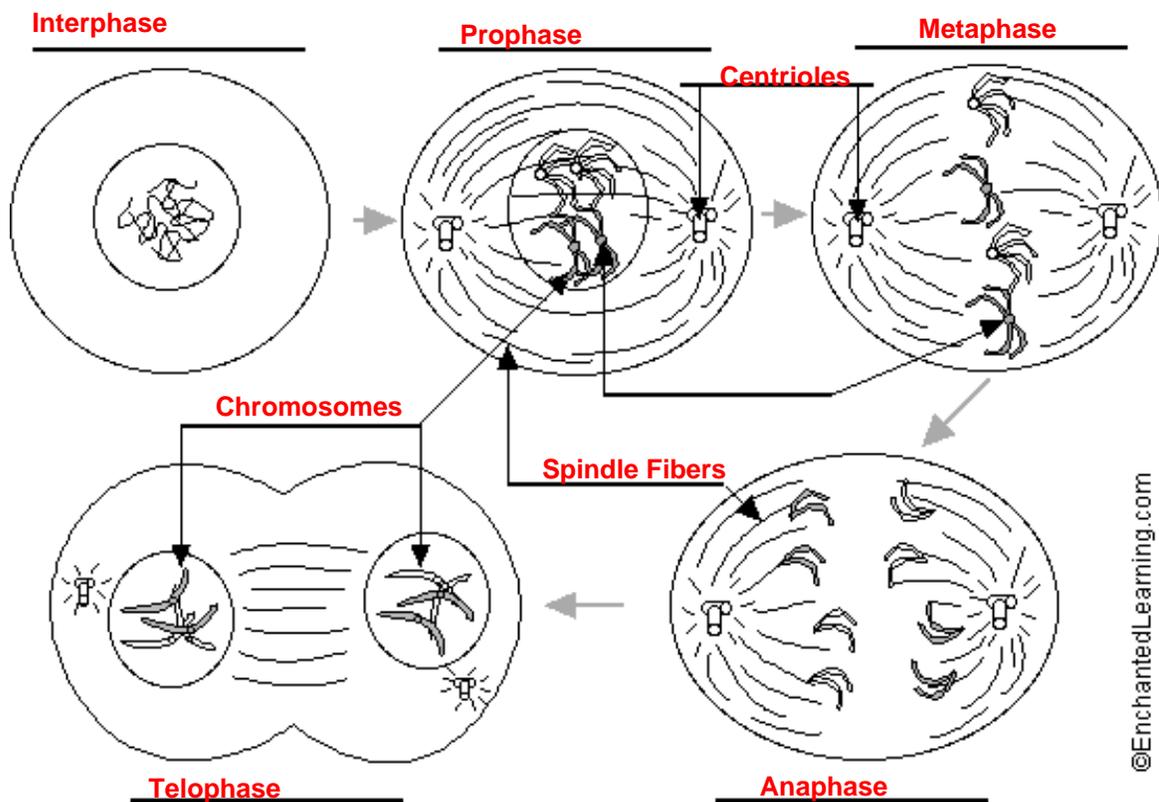
Name: \_\_\_\_\_

Student #: \_\_\_\_\_

1.2 Mitosis and asexual reproduction require one parent

1.2.1 Mitosis

1. Label the following diagram of mitosis of an animal cell.



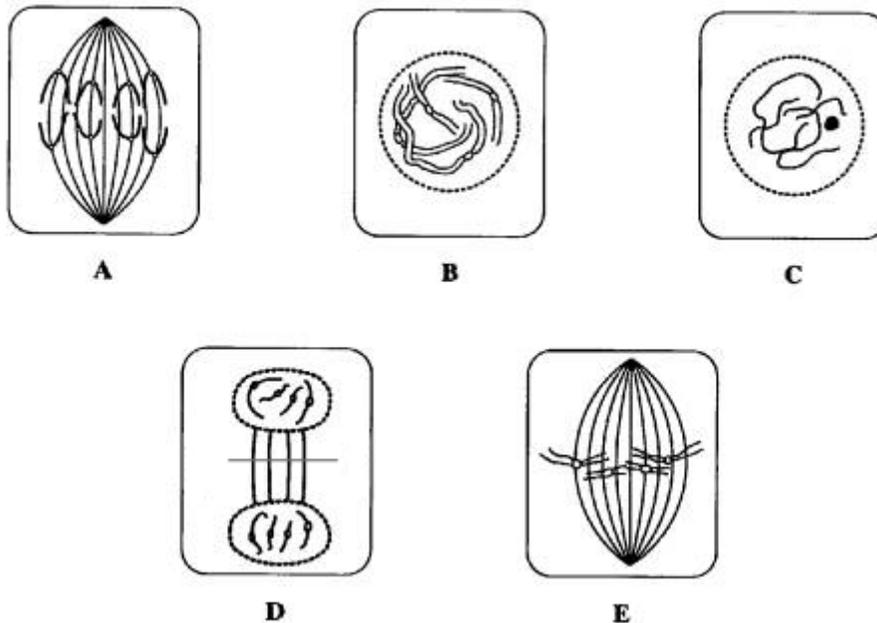
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- During which stage of a cell's cycle do the replicated chromosomes thicken and become visible? Prophase
- In animal cells, which structure is thought to produce the spindle fibers that help separate the sister chromatids during anaphase? Centrioles
- Is this structure found in plant cells? No

5. The drawing below has been made from a photograph showing a cell undergoing mitosis. Based on the drawing, in what stage of mitosis must the cell have been in?



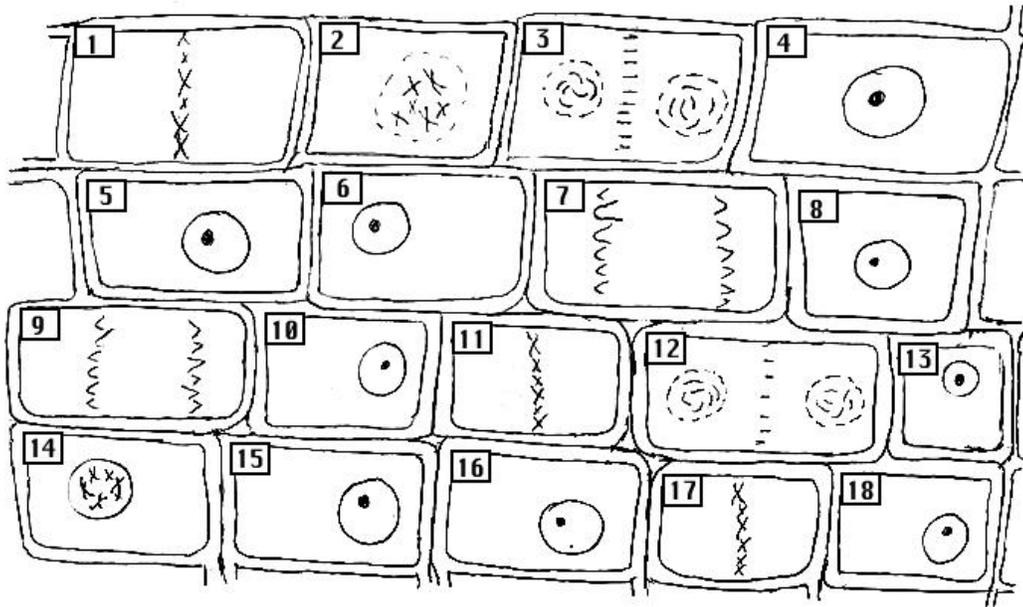
6. The drawings A-E show stages of mitosis in an animal cell.



- (a) Which of the drawings A -E shows
- (i) interphase   C   (**DNA** is replicated)
  - (ii) prophase   B   (**chromosomes – 2 sister chromatids – shorten**)
  - (iii) metaphase   E   (**sister chromatids** line up)
  - (iv) anaphase   A   (**sister chromatids** separate)
  - (v) telophase   D   (new nucleus forms at each end)
  - (vi) cytokinesis   D   (cell contents divided between **2 daughter cells**)
- (b) Give two processes which occur during interphase and which are necessary for nuclear division to take place.

  Growth   of the cell and   Replication   of the DNA

7. This drawings shows various stages of mitosis in a fast growing onion root tip.



Identify the cells (by number) which are in the following stages of mitosis:

interphase 4, 5, 6, 8, 10, 13, 15, 16, 18

prophase 2, 14

metaphase 11, 17

anaphase 7, 9

telophase 3, 12

8. Using colored pens or pencils, show how 2 chromosomes are passed from mother cell to two daughter cells.

