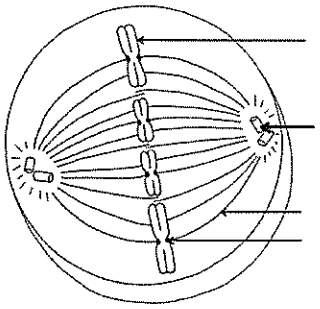
A MIX OF MITOSIS

1) Draw and label a chromosome

2) Draw a diagram of DNA replication

3) Which structure of the animal cell produces the spindle fibres that help split the sister chromatids? _____
4) At which stage do the sister chromatids split/move apart? _____
5) During which stage do the replicated chromosomes thicken/condense and become visible? _____
6) At which stage does the nuclear membrane begin to fade from view? _____
7) At which stage is the cytoplasm of the cell being divided? _____
8) At which stage does a nuclear membrane form around the chromosomes? _____
9) At which stages are the chromosomes located at the equator of the cell? _____
10) At which stage does the division (cleavage) furrow appear? _____
11) At which stage are the chromosomes moving towards the poles of the cell? _____
12) At which stage is the spindle formed? _____
13) At which stage is the DNA replicated? _____
14) What is the name of the structure that connects two chromatids? _____
15) Label the structures on the diagram shown to the right

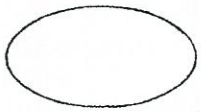


STAGE	DIAGRAM	EVENTS
INTERPHASE		
PROPHASE		
METAPHASE		
ANAPHASE		
TELOPHASE		
CYTOKINESIS		

Mitosis Notes **Name** _____

_____ _____ occurs in a series of stages, or _____.

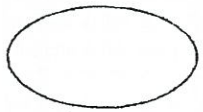
1st: _____
- Chromosomes are _____ (# doubles)
- Chromosomes appear as threadlike coils (_____) at the start, but each chromosome and its copy (_____ chromosome) change to sister chromatids at end of this phase



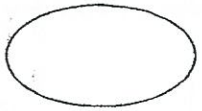
Sister chromatids

_____

2nd: _____
- _____ begins (cell begins to divide)
- _____ (or poles) appear and begin to move to opposite ends of cell
- _____ _____ form between the poles

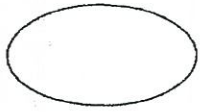


3rd: _____
- _____ (or pairs of chromosomes) attach to the spindle fibers



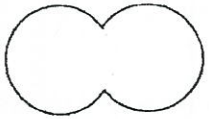
Sister chromatids

4th: _____
- Chromatids (or pairs of chromosomes) _____ and begin to move to _____ ends of the cell

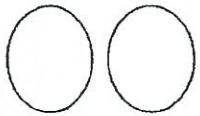


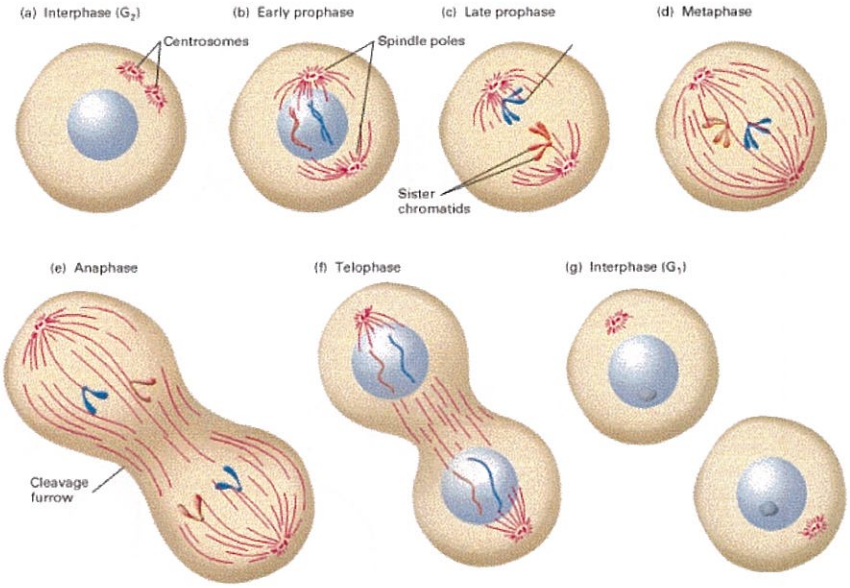
Sister chromatids split

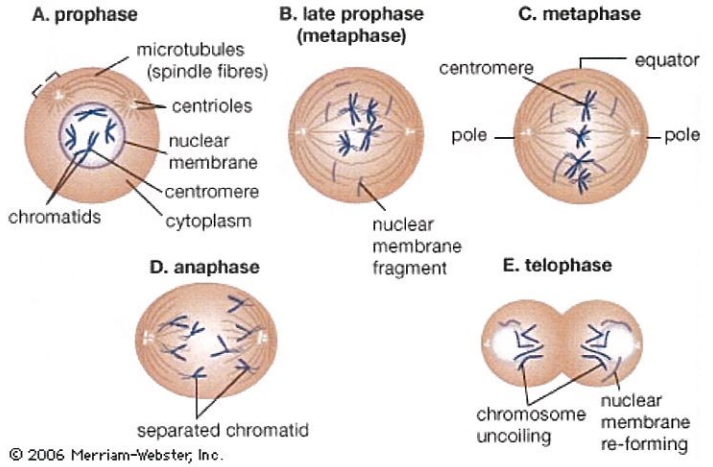
5th: _____
- Two new _____ form
- Chromosomes appear as chromatin (_____ rather than _____)
- _____ ends



6th: _____
- Cell membrane moves inward to create two _____ cells - each with its own _____ with identical _____







http://www.pbs.org/wgbh/nova/miracle/divide.html - information, with animations

http://www.youtube.com/watch?v=L0k-enzoeOM – Mitosis Crash course

http://www.youtube.com/watch?v=VlN7K1-9QB0 – Mitosis video

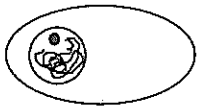
http://www.youtube.com/watch?v=nPG6480RQo0 – Mitosis video (good video to just see the stages, no commentary)

http://www.youtube.com/watch?v=cvlpmmvB_m4 – Mitosis video

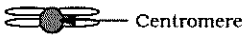
Mitosis Notes

Cell division occurs in a series of stages, or phases.

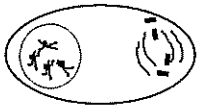
1st: INTERPHASE



- Chromosomes are copied (# doubles)
- Chromosomes appear as threadlike coils (chromatin) at the start, but each chromosome and its copy (sister chromosome) change to sister chromatids at end of this phase

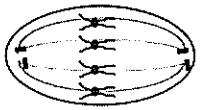


2nd: PROPHASE

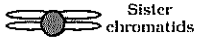


- Mitosis begins (cell begins to divide)
- Centrioles (or poles) appear and begin to move to opposite ends of cell
- Spindle fibers form between the poles

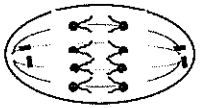
3rd: METAPHASE



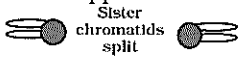
- Chromatids (or pairs of chromosomes) attach to the spindle fibers



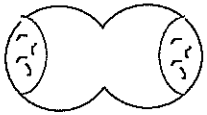
4th: ANAPHASE



- Chromatids (or pairs of chromosomes) separate and begin to move to opposite ends of the cell

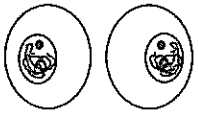


5th: TELOPHASE



- Two new nuclei form
- Chromosomes appear as chromatin (threads rather than rods)
- Mitosis ends

6th: CYTOKINESIS



- Cell membrane moves inward to create two daughter cells - each with its <u>own nucleus</u> with <u>identical chromosomes</u>