

Mitosis

1. What are chromosomes and chromatin made of?
__DNA and protein__
2. What is the major difference between chromosomes and chromatin?
__chromatin is unorganized. Chromosomes are condensed and organized. Both the same stuff__
3. How can you compare chromatin to "tin-foil"? (This may help you to remember it)
__tin foil can be balled up like chromatin or twisted and condensed into a shape like an X. Either way it is still made of the same stuff__
4. What are chromatids? __1/2 of a chromosome or one arm of it. There are two chromatids per chromosome and they are identical (same DNA)__
5. What happens during **interphase** (the phase in which your cells spend the most time)?
__The cell is producing proteins and growing, it is copying its DNA so it has 2 sets (remember each chromatid is a twin?), and it is getting ready to split__
6. What are the **Four Phases of Mitosis**? (remember these in order)

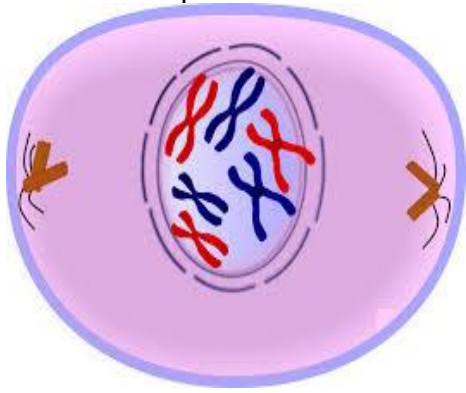
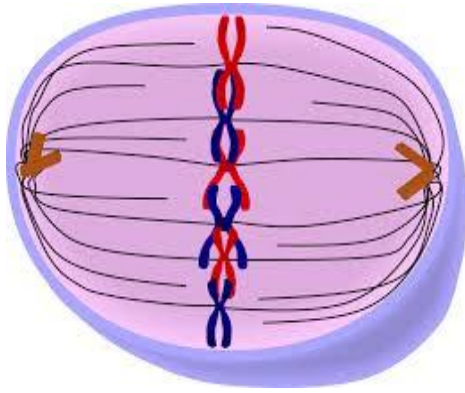
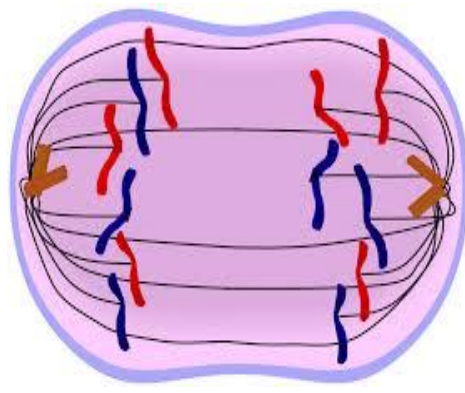
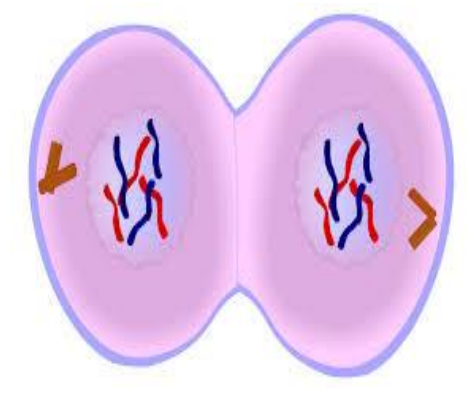
P __prophase__ What happens during this step? __chromosomes become thick and visible (the players suit up). The nuclear membrane starts to break down.__

M __metaphase__ What happens during this step? __Chromosomes line up at the equator Of the cell (the players line up mid-field). Nuclear membrane disappears__

A __anaphase__ What happens during this step? __Chromosomes split and the individual Chromatids get pulled to opposite poles (the players split into teams)__

T __telophase__ What happens during this step? __New nuclear membranes form around each set of chromatids. They unravel and resemble chromatin again__
7. Is Mitosis the actual division of a cell? Why or why not? __No, mitosis is just the splitting of the chromosomes, not the rest of the cell.__

4 Phases of Mitosis

<p>Phase 1 – Prophase</p>  <p>Chromatin forms up into chromosomes Nuclear membrane begins to break down</p>	<p>Phase 2</p>  <p>Chromosomes line up along the cell's equator as the nuclear membrane finishes breaking down</p>	<p>Phase 3</p>  <p>Chromatids are pulled apart at their center and a new group travels to either pole</p>	<p>Phase 4</p>  <p>A new nuclear membrane forms around each group as the chromatids jumble back up into chromatin</p>
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What are the steps/phases the cell is in when NOT undergoing Mitosis? Include a brief description of each.

Cytokinesis is the step where the cell actually splits into 2 daughter cells.

Interphase is where a cell spends most of its time. Building new organelles and proteins, duplicating its DNA, and preparing to enter mitosis again