

# Background Info on Chromosomes

Chromosomes - the cells genetic info. or DNA

- ↳ in prokaryotes - 1 circular chromosome, not enclosed
- ↳ in eukaryotes - many, # depends on species
  - enclosed in nucleus
  - complex structure: chromatin = DNA + protein complex:
    - ↳ Chromosomes made of supercoils made of coils made of nucleosomes made of bundles of DNA surrounding histones

## 3. The Cell Cycle includes... growth + Division

↳ growth, preparation for division, division.

↳ prokaryotes - simply growth DNA dup + division once they reach a certain size + in fav. conditions

↳ eukaryotes - 4 phases: (length depends on type of cell)

Interphase: ~~3 phases~~ 3 phases:  $G_1$  - growth  $\rightarrow$  ↑ in size  $\rightarrow$  make new proteins + organelles

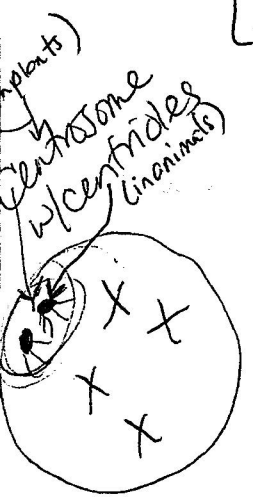
$S$  - DNA replication - doubles in DNA

$G_2$  - prep for mitosis - shorter  $\rightarrow$  organelles for division are made

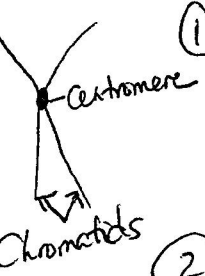
Cell division: 1 phase: M phase  $\rightarrow$  2 parts

- mitosis  $\rightarrow$  nuclear division

- cytokinesis  $\rightarrow$  division of cytoplasm



## 4. 4 Phases of mitosis (nuclear division)



① Prophase - longest <sup>phase</sup>, DNA condenses + chromosomes become visible, spindles begin forming from centriole, nucleolus and nuclear envelope disappear. Centrioles move to opposite poles

② Metaphase - shortest - centromeres of chromosomes line up in the middle + spindles attach to