

# MITOSIS SKETCH

## INTERPHASE

90% of life cycle  
time varies

- G<sub>1</sub> cell growth
- S DNA replication
- G<sub>2</sub> ↑ protein synthesis  
prep for Mitosis

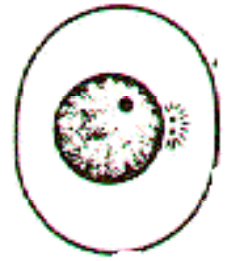
cellular metabolism; DNA replication (DNA duplication).

Human cells **entering** interphase:

>>>>> 46 **unduplicated** chromosomes

Human cells **exiting** interphase:

>>>>> 46 **duplicated** chromosomes

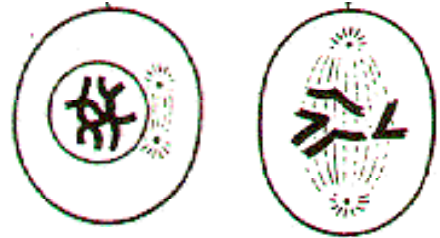


## MITOSIS

### PROPHASE

1 - several hrs

diagram: 2n = 4  
human: 2n = 46



Chromatin >>>>> Chromosomes

The chromatin is actually coiling (condensing); becomes visible.

Nuclear membrane and nucleoli become indistinct.

Centrioles move toward opposite poles of cell.

Spindle forms.

### METAPHASE

5 - 15 minutes

diagram: 2n = 4  
human: 2n = 46

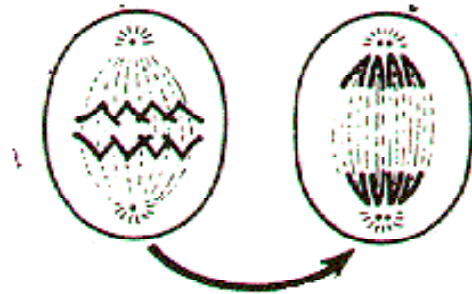


Chromosomes line up along center of spindle.  
(*equatorial plate*)

### ANAPHASE

2 - 10 minutes

diagram: 2n = 4  
human: 2n = 46

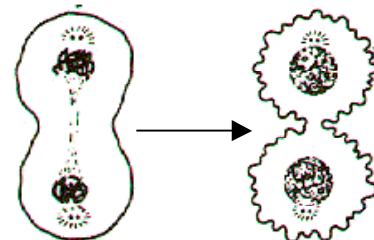


Centromeres split; Chromatids separate-  
then move toward opposite poles of the cell.  
Cytokinesis actually begins (see below).

### TELOPHASE

10 - 30 min.

diagram: 2n = 4  
human: 2n = 46



**Cytokinesis:** cell invaginates >>> 2 cells. Each “daughter” cell possesses the exact genetic material (info) as the original cell. Know *cell plate formation vs. furrowing*.

Chromosomes >>>>> chromatin (i.e., uncoil).

Nuclear membrane and nucleoli become distinct. Spindle disappears.