

The background of the slide is a solid blue color with a subtle, wavy pattern that flows from the top left towards the bottom right, creating a sense of movement and depth.

PRESENTATION ON CELL CYCLE



CONTENT:-

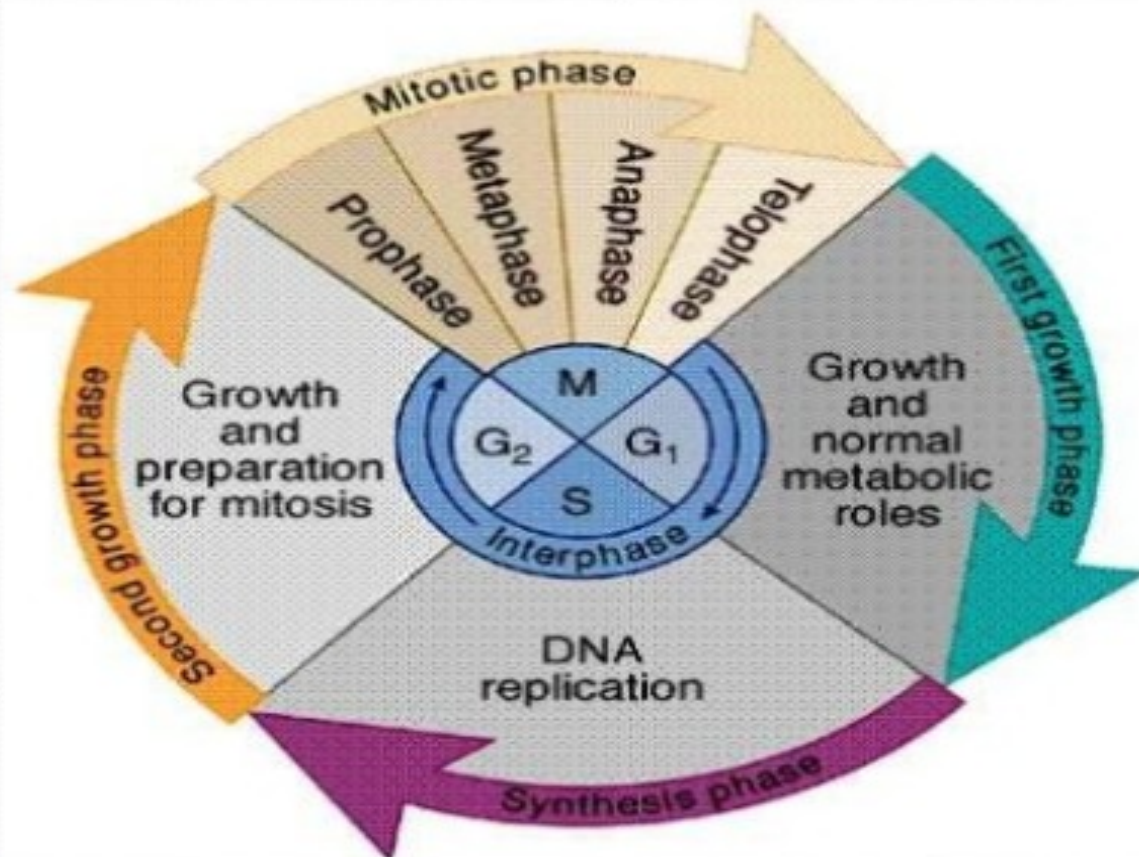
- ***What is cell cycle ?***
- ***Phases of cell cycle***
- ***Stages of cell cycle***



WHAT IS CELL CYCLE?

- *The cell cycle is a process in which a cell grows and divides to create a copy of itself. Some organisms reproduce through the cell cycle, and in complex multicellular organisms, the cell cycle is used to allow the organism to grow, and to replace cells as they grow worn out. In animals, the whole cell cycle takes around 24 hours from start to finish. Some cells, such as skin cells, are constantly going through the cell cycle, while other cells may divide rarely, if at all; neurons, for example, don't grow and divide once they are mature.*

PHASES OF CELL CYCLE





Cell cycle consist three phases;-

- ***G1 phase-growth and synthesis***
- ***S phase- DNA synthesis phase***
- ***G2 phase-Preparation for division***
- ***M phase-M phase includes the overlapping processes of mitosis and cytokinesis***



G1 PHASE

- *Gap phase 1 begins at the completion of mitosis and cytokinesis and lasts until the beginning of S phase. This phase is generally the longest of the four cell cycle phases and is quite variable in length. During this phase, the cell chooses either to replicate its deoxyribonucleic acid (DNA) or to exit the cell cycle and enter a quiescent state (the G0 phase).*



S PHASE

- *Replication of the chromosomes is restricted to one specific portion of interphase, called S phase (DNA synthesis phase), which typically lasts about 6 h. In mammalian cells, the start of S phase—the actual initiation of DNA synthesis—takes place several hours after the cell has committed to carrying out DNA synthesis. During S phase, each chromosome replicates exactly once to form a pair of physically linked sister chromatids. In animal cells, a pair of centrioles is also duplicated during S phase.*



G2 PHASE

- ***The portion of interphase that follows S phase is called gap phase 2. Some cells can exit the cell cycle from G2 phase, just as they can from G1 phase.***
Combination of these three phases is known as interphase.



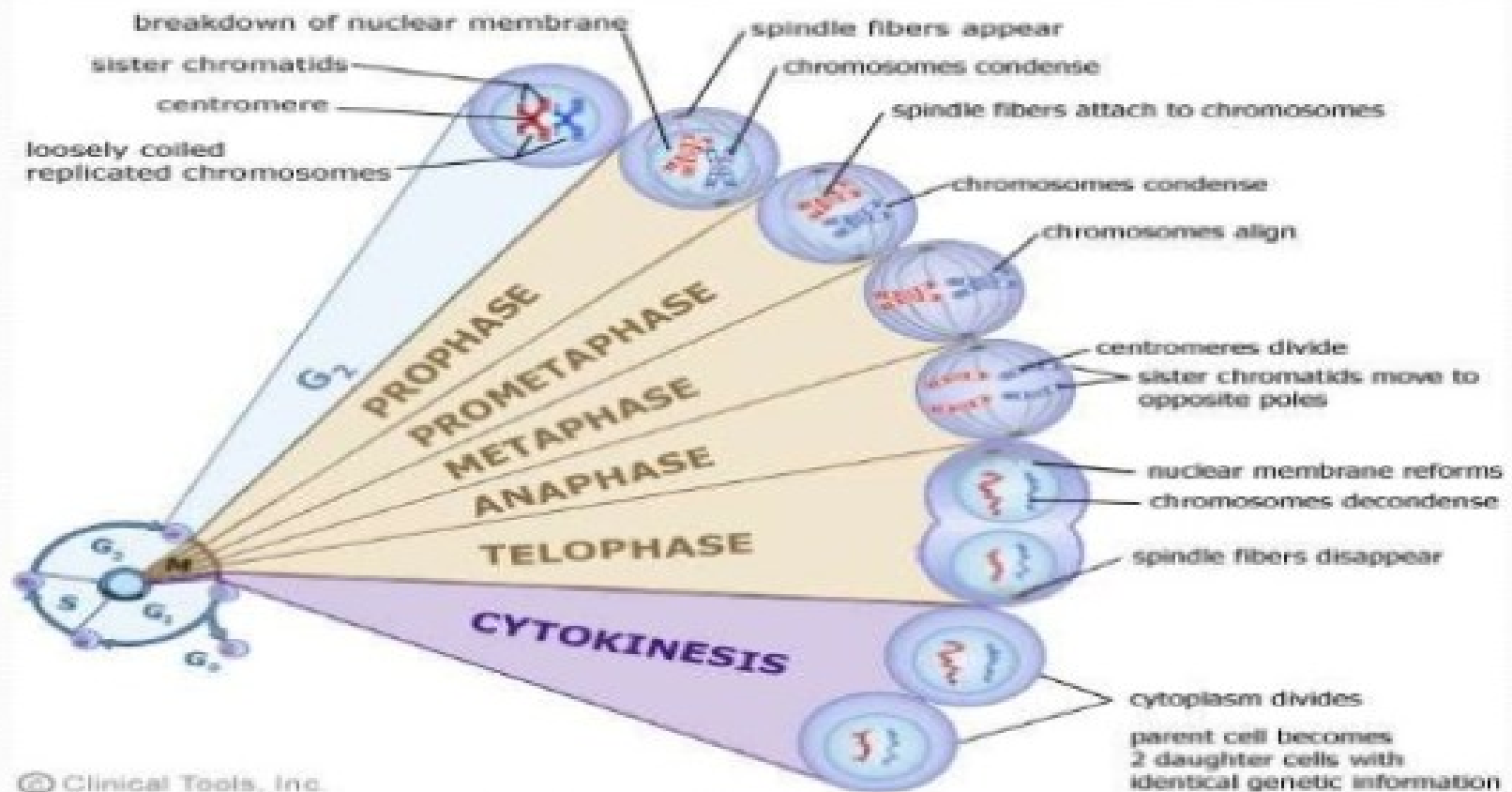
M PHASE

- *M phase includes the overlapping processes of mitosis and cytokinesis*

Mitosis is divided into five stages;-

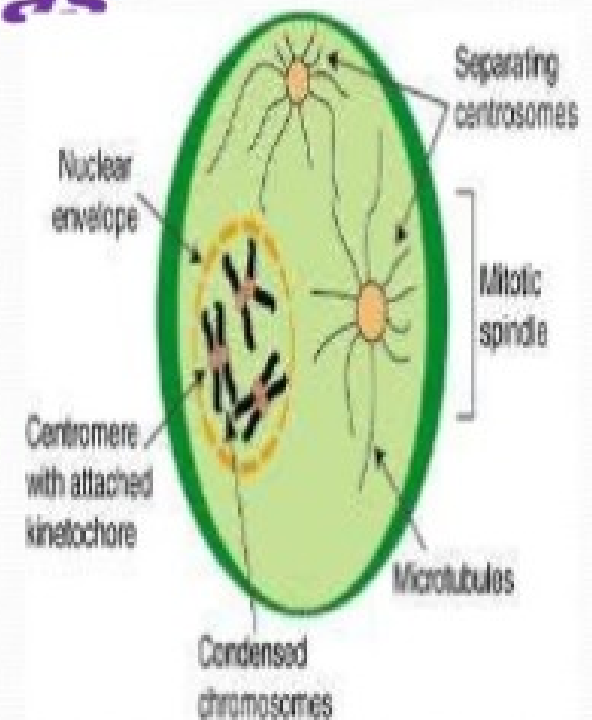
- **Prophase**
- **Prometaphase**
- **Metaphase**
- **Anaphase**
- **telophase**

Representation of mitosis stages



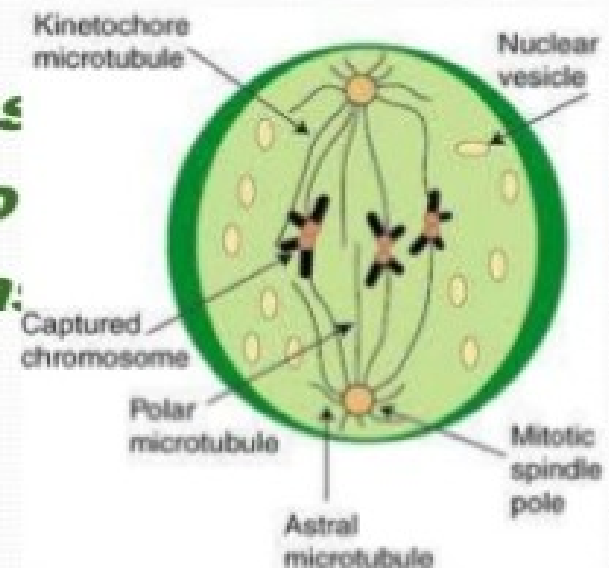
PROPHASE

- ***DNA becomes visible as chromosomes***
- ***Nuclear membrane dissolves***
- ***Centrioles migrate to opposite poles***
- ***Spindle fibers form***



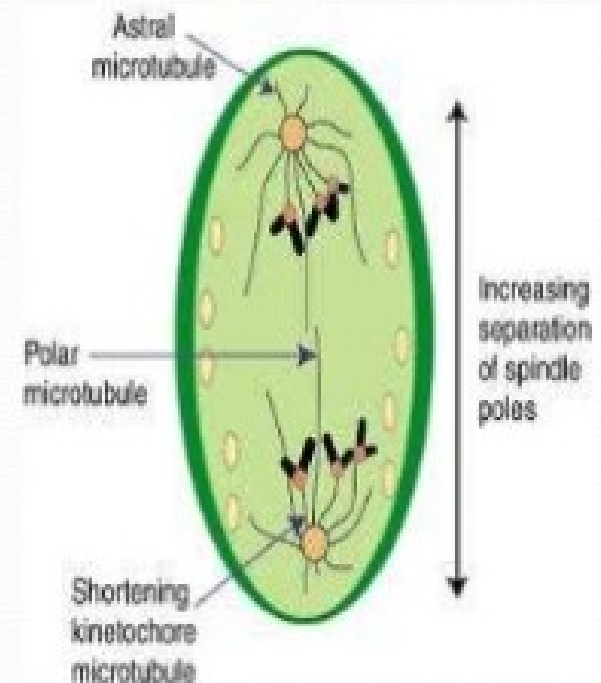
PROMETAPHASE

- **Prometaphase is the phase of mitosis following prophase and preceding metaphase, in eukaryotic somatic cells.**
- **Prometaphase is sometimes included as part of the end of prophase and early metaphase.**



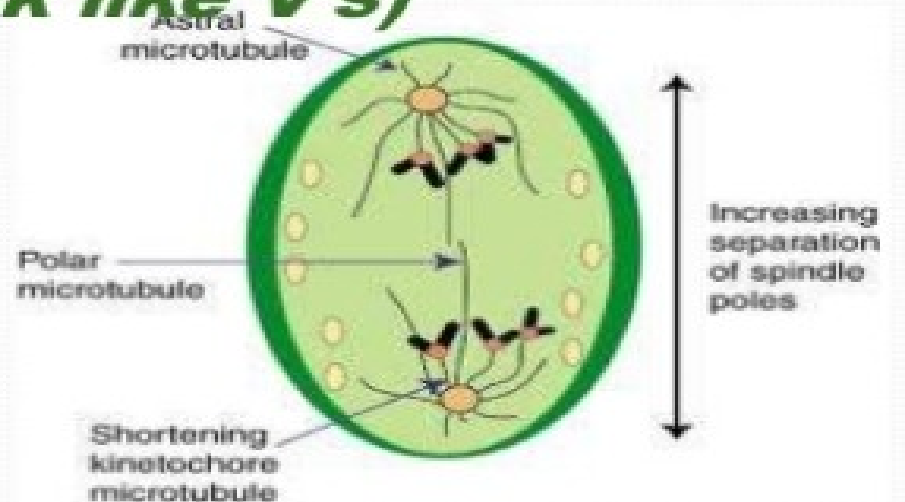
METAPHASE

- *Spindle fibers attach to centromeres*
- *Chromosomes line up at midline of the cell*



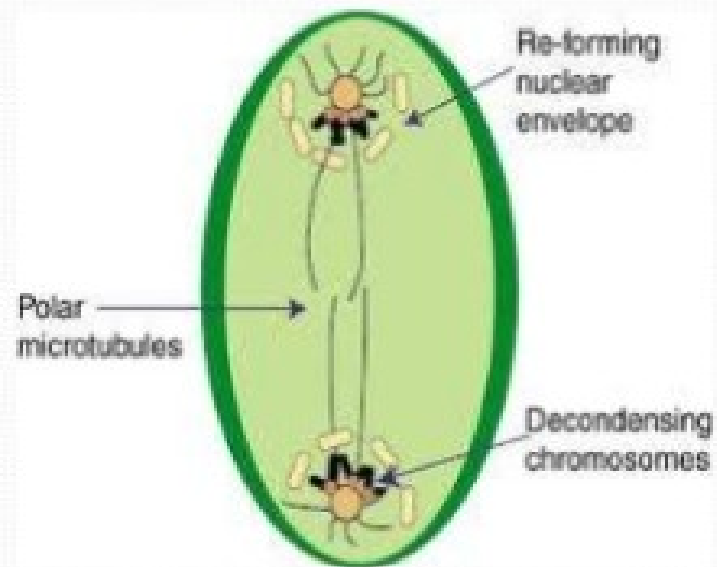
ANAPHASE

- ***Spindle fibers pull apart centromeres***
- ***One chromatid goes to each centriole (they look like V's)***



TELOPHASE

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



CYTOKINESIS

occurs after mitosis

- Cell membrane moves inward to create two daughter cells – each with its own nucleus with identical chromosomes.*

