

cpo science

Life Science





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Genetics

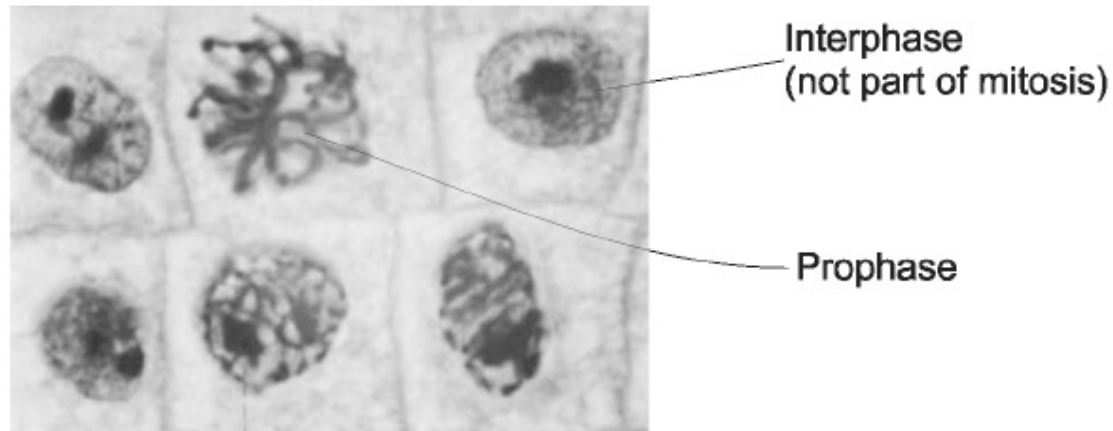
Chapter Ten: Reproduction

- **10.1 Growth and Cell Reproduction**
- **10.2 Sexual Reproduction and Meiosis**

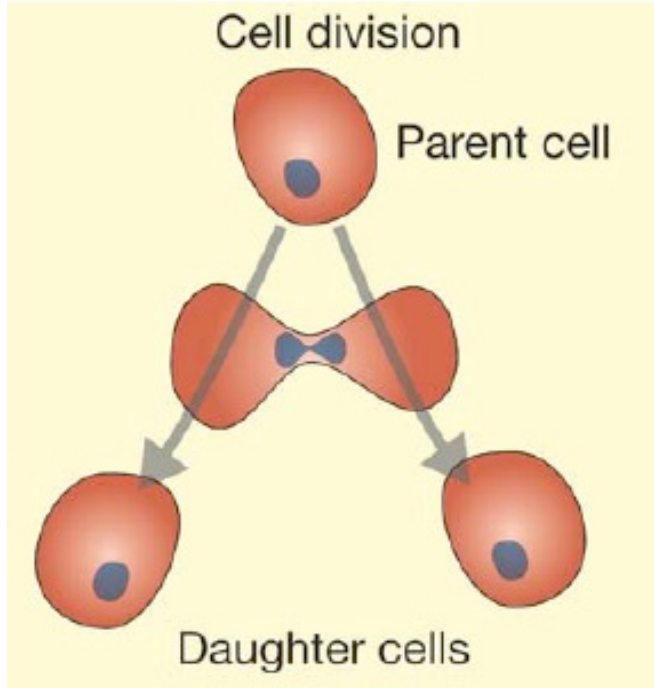
Investigation 10A

Observing the Cell Cycle

- *How much time is spent in different stages of the cell cycle?*



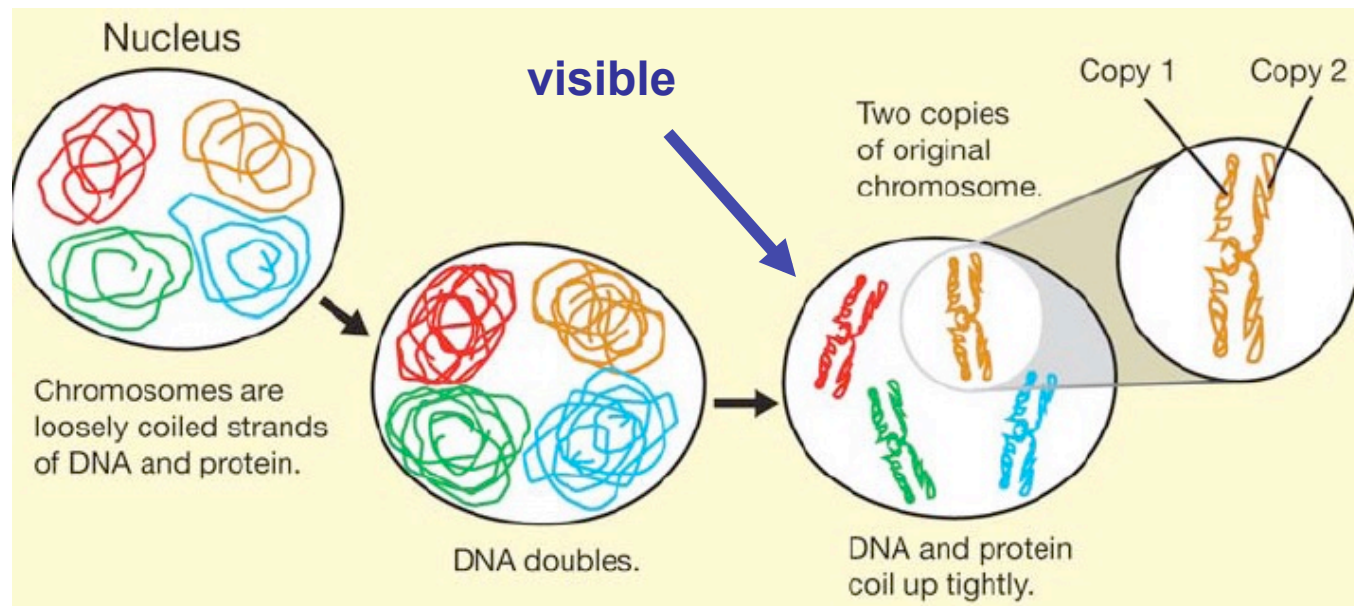
10.1 Growth and Cell Reproduction



- The process of one cell dividing into two daughter cells is called **cell division**.
- Most of the cells in your body reproduce by dividing this way.

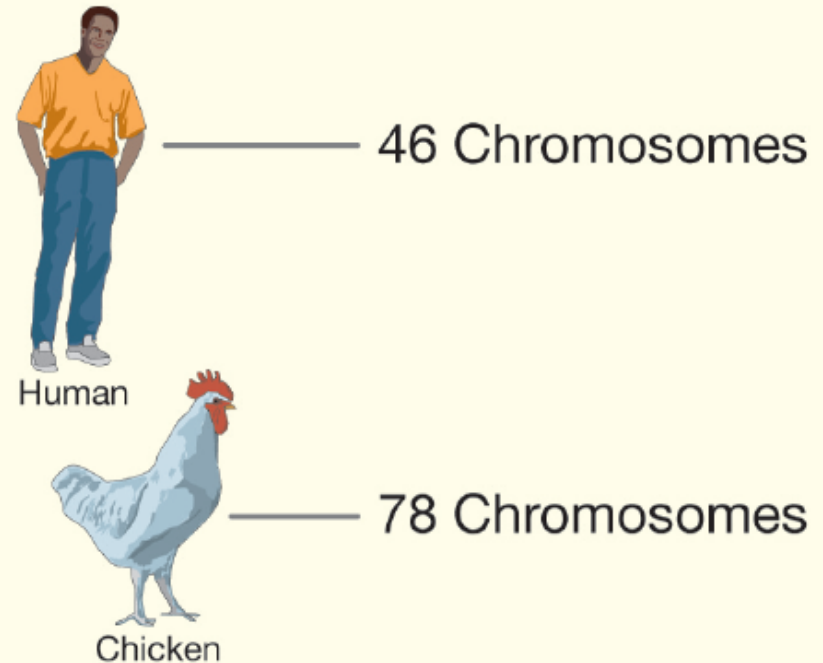
10.1 Chromosomes

- A **chromosome** is a structure made of DNA and protein in cells with a nucleus.
- Individual chromosomes are not clearly visible under a microscope until just before a cell divides.



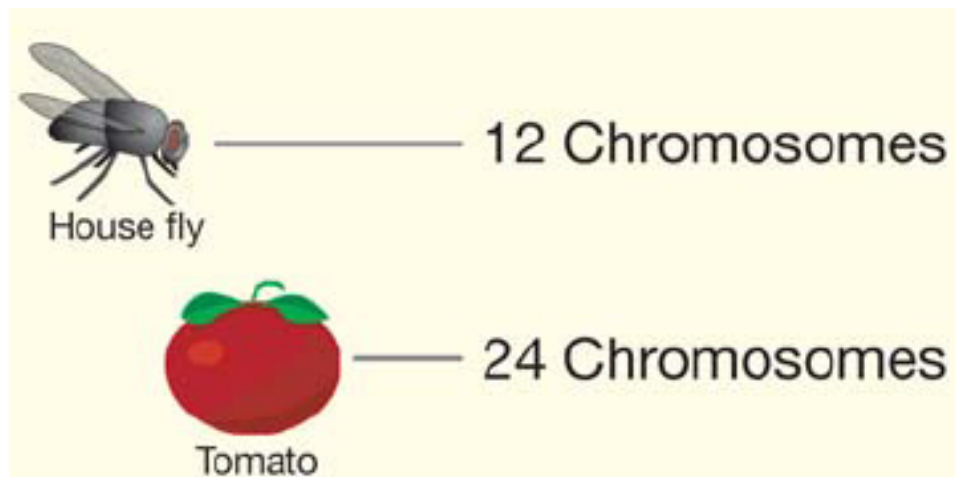
10.1 Chromosomes

- Chromosomes organize the DNA.
- For example, humans have 46 chromosomes, but chickens have 78.



10.1 Chromosomes

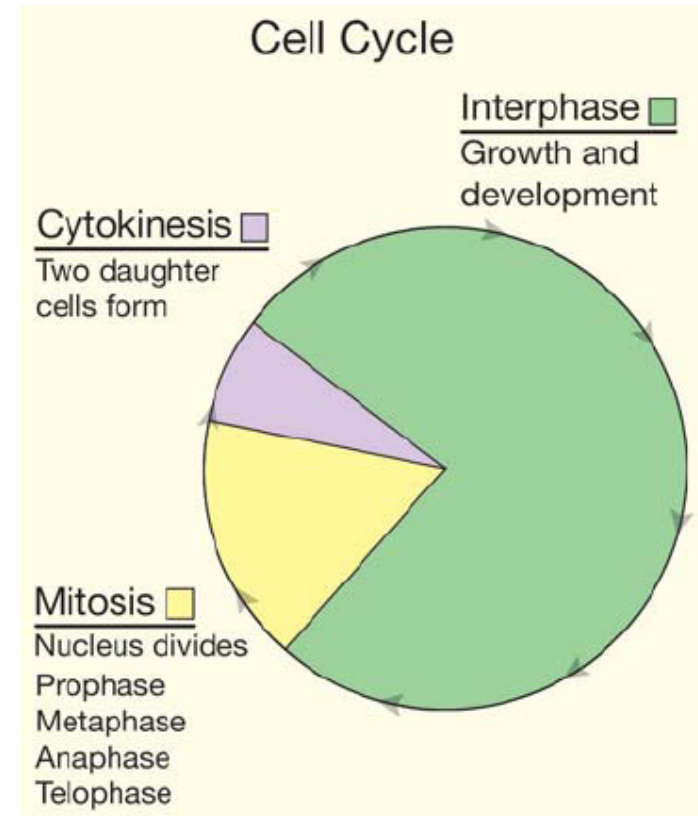
- A house fly has 12 chromosomes and a tomato plant has 24.



Does having more chromosomes mean the organism is more complex?

10.1 The cell cycle

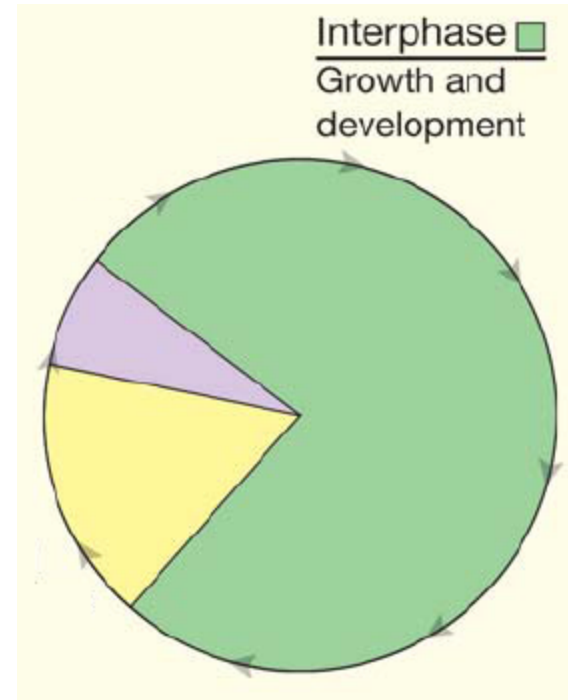
- The **cell cycle** is the period of time from the beginning of one cell division to the beginning of the next.
- It consists of three stages:
 1. interphase
 2. mitosis
 3. cytokinesis



Which part of the cell cycle takes the longest?

10.1 The cell cycle

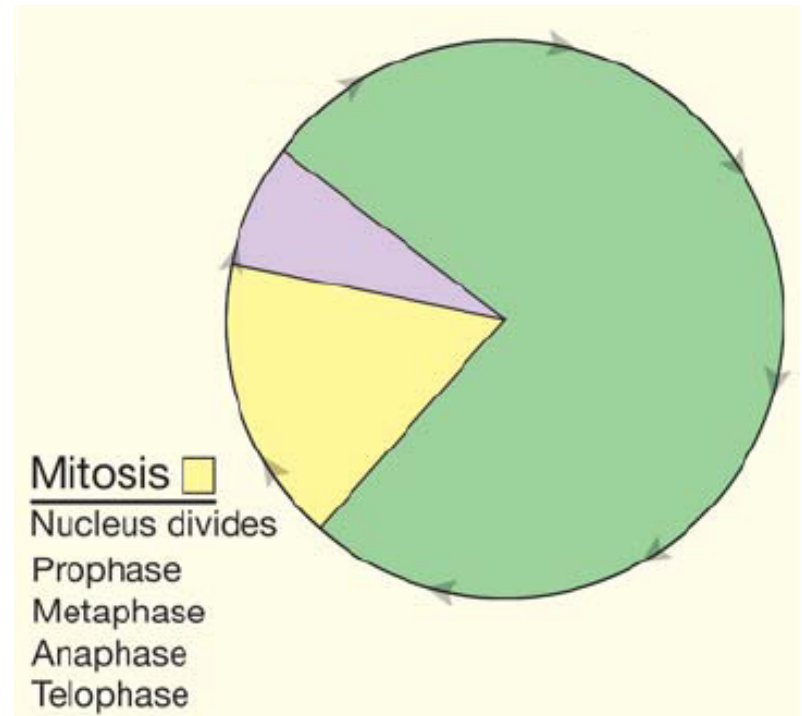
- **Interphase** is the stage that occurs in between cell divisions.
- During interphase the cell grows and develops and performs its functions.



What stage follows interphase?

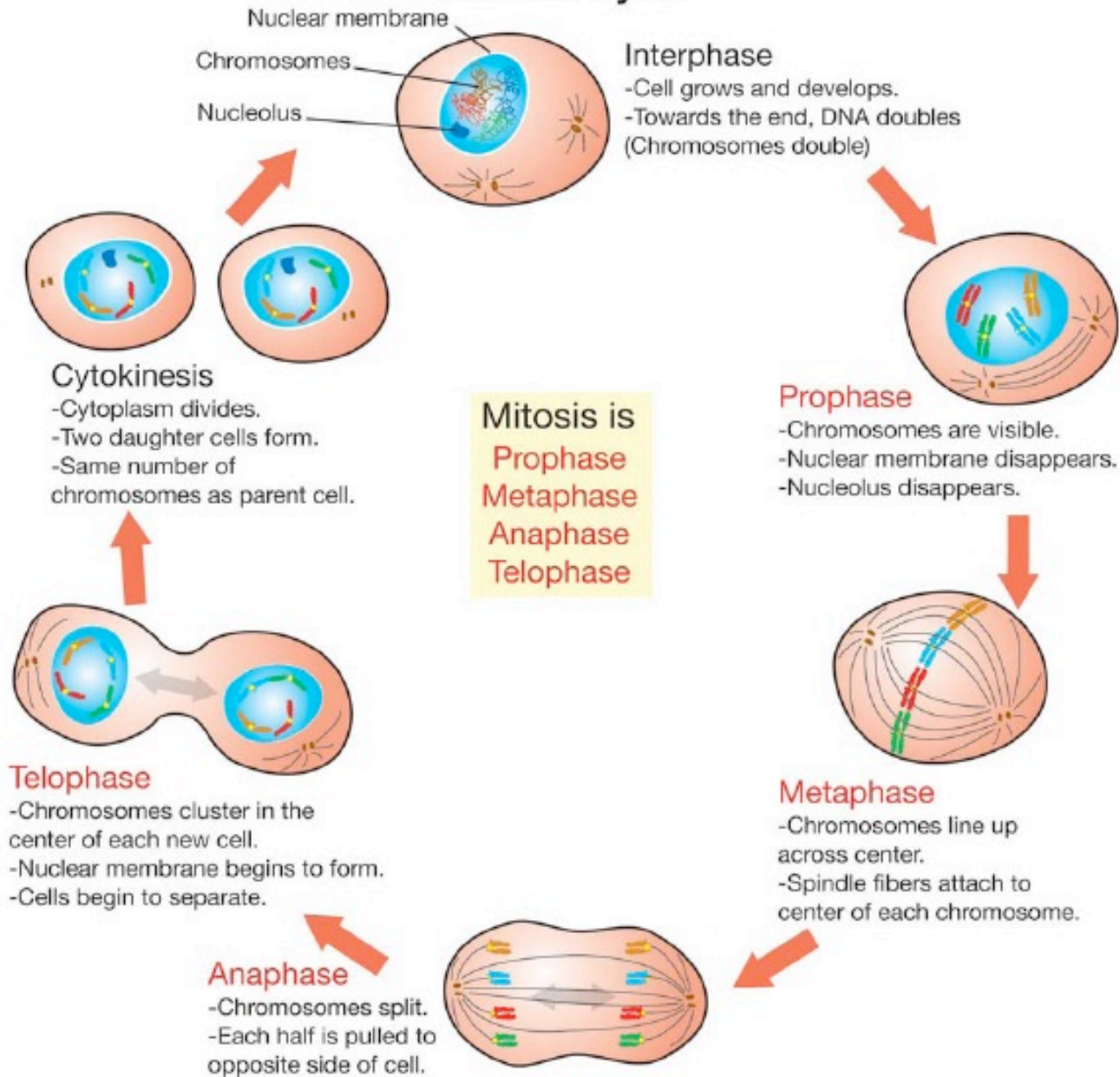
10.1 The cell cycle

- **Mitosis** is the process in cell division where the nucleus divides into two nuclei, each with an identical set of chromosomes.
- Mitosis is divided into four phases:
 1. *prophase*
 2. *metaphase*
 3. *anaphase*
 4. *telophase*.



What stage follows mitosis?

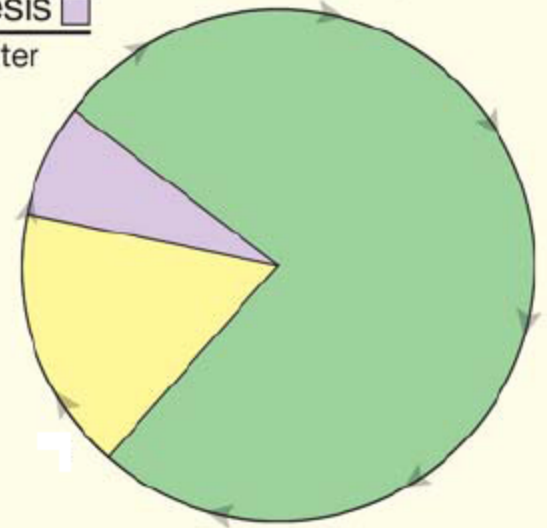
The Cell Cycle



10.1 The cell cycle

- The shortest stage of the cell cycle is called **cytokinesis**.
- In cytokinesis, the cytoplasm and its organelles divide into two daughter cells.

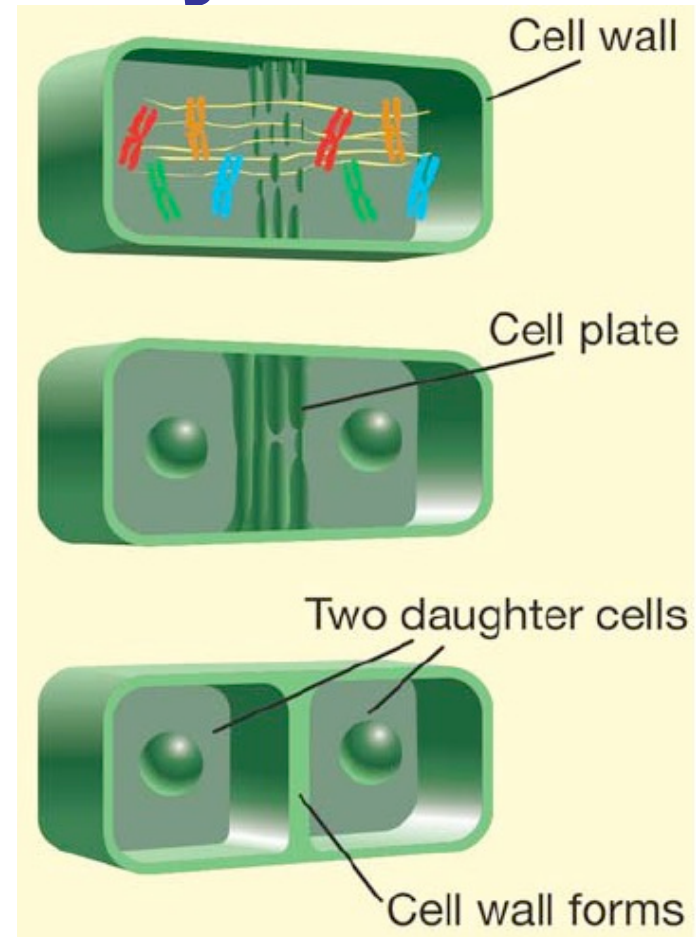
Cytokinesis □
Two daughter
cells form



10.1 The cell cycle

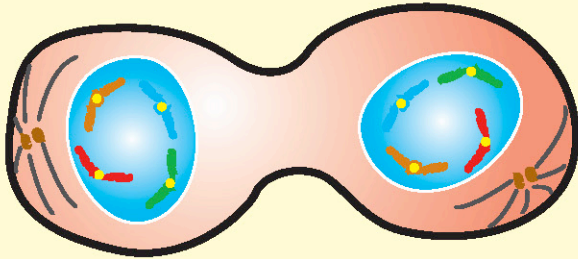
- Cytokinesis in plant cells is different because a cell plate forms.

What stage follows cytokinesis?

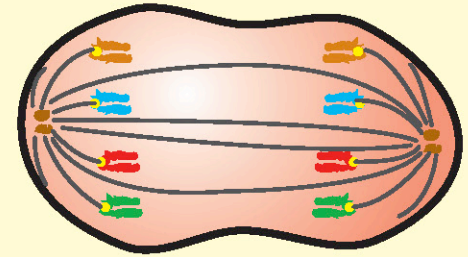


Cell Cycle

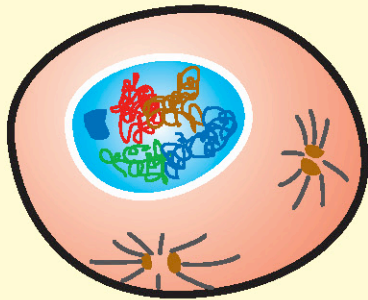
1.



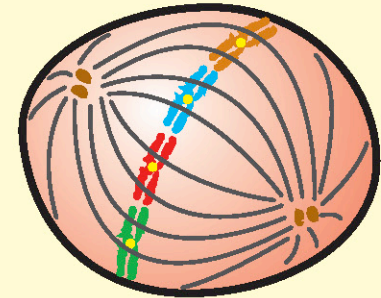
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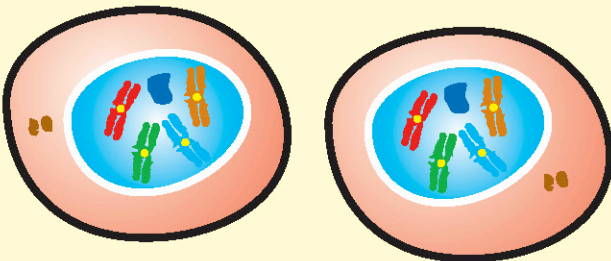
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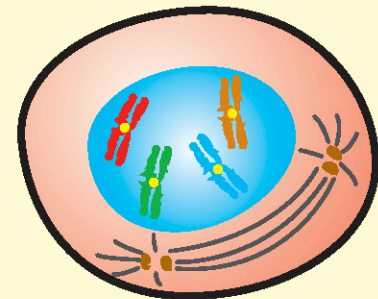
5.



3.



6.



10.1 Observing the cell cycle



Can you see what stage and phase this cell shows?

- With a microscope and specially prepared slides, we can observe the cell cycle and identify each part.