

Biology
Mitosis / Meiosis
2012 - 2013
#1

- I. Cell division = process by which one cell divides into two cells
- includes the division of the nucleus and the organelles

A. Reasons for cell division

1. unicellular organisms

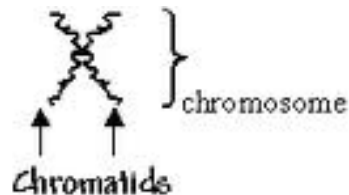
- means of reproduction
 - bacteria → binary fission (asexual reproduction)

2. multicellular organisms

- growth and development
 - leads to differentiation in cells → cells become specialized

B. DNA

1. chromatin = thin form of DNA found in cells that are NOT dividing
2. chromosomes = thick form of DNA found in cells that are dividing
 - each chromosome is made up of two identical chromatids



C. Chromosome number (humans)

1. 46 chromosomes in humans = diploid
 - 44 are autosomes = control body characteristics

- 2 are sex chromosomes = control the gender of the individual
- exist as homologous pairs → 23 pairs
 - one from your mom and one from your dad

2. some cells have just 23 chromosomes = haploid

D. Differences in chromosome number

1. trisomy = one too many chromosomes (47 instead of 46)
 - trisomy 21 = Downs Syndrome
2. monosomy = one too few chromosomes (45 instead of 46)
 - Turners Syndrome = X O

II. Cell Cycle = the “life cycle” of the cell

- 6 steps

A. Interphase = resting phase of the cell

- 90% of all cells are in this phase
1. G1 period = growth and development
 - longest phase of a cell’s life
 2. S period = DNA makes a copy of itself
 - 2 chromatids form
 3. G2 period = further cell growth

Review website : www.khanacademy.org/science/biology/cell-division/v/phases-of-mitosis

***** watch the first 8:05 minutes

