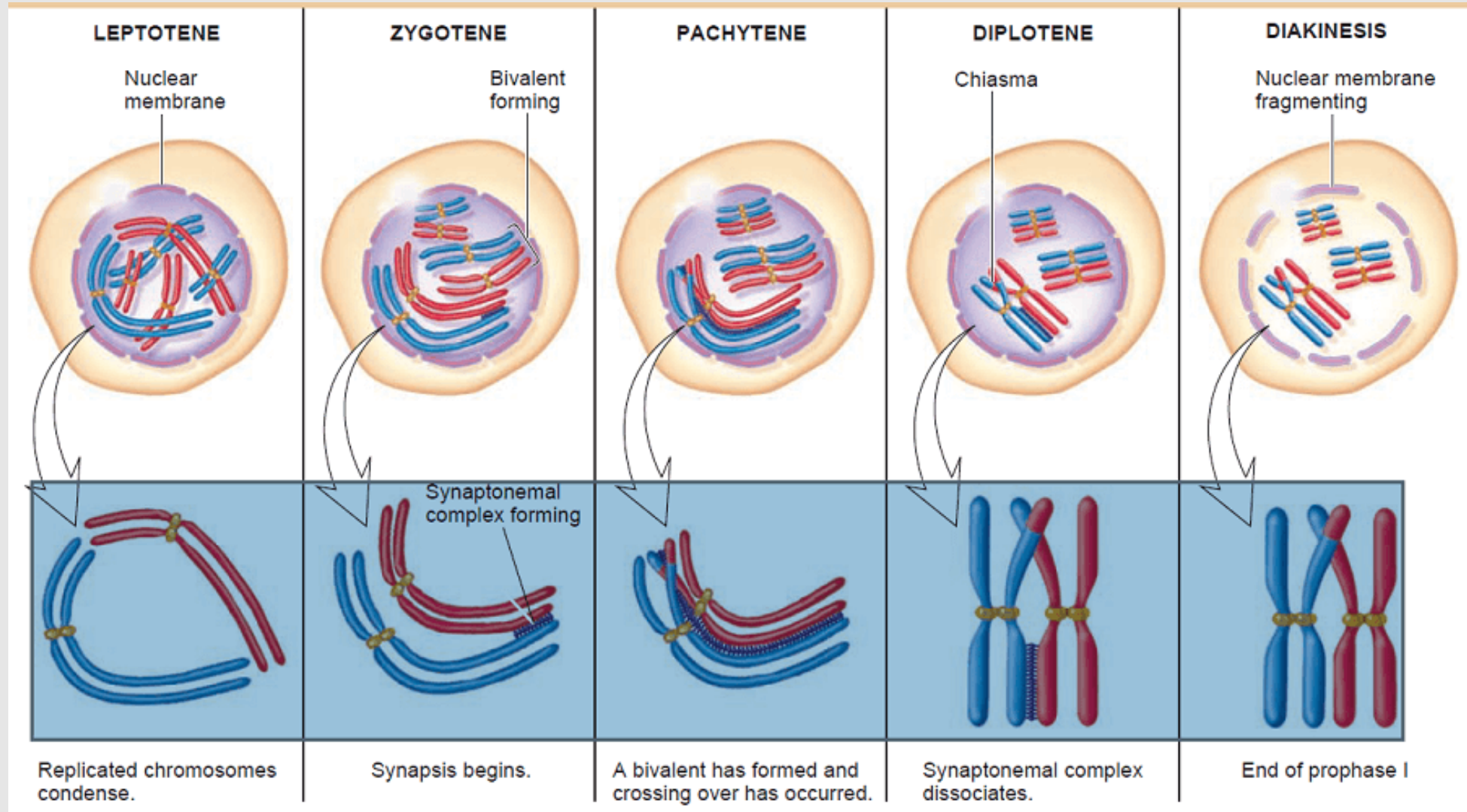
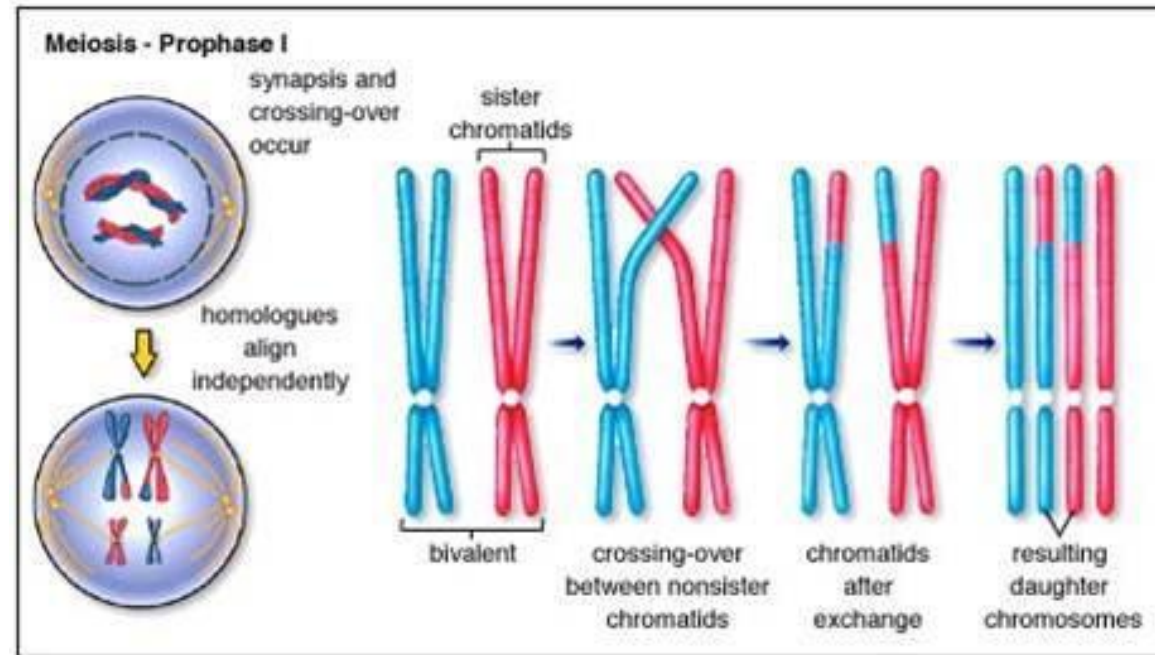


Meiosis and Fertilization

Benilda Ramos-Butron

Prophase I





CROSSING OVER



Reductional Division

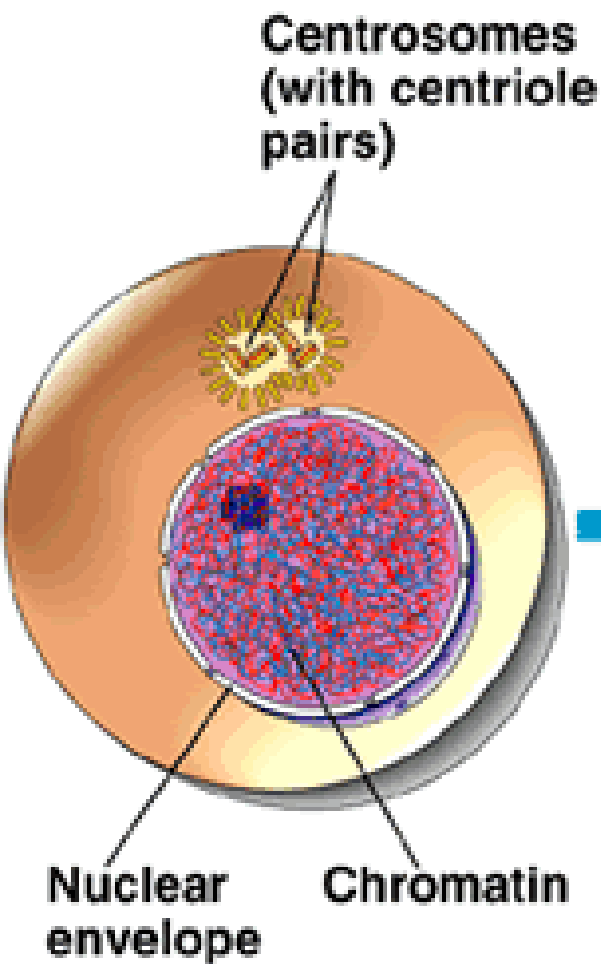
Meiosis I

interphase I

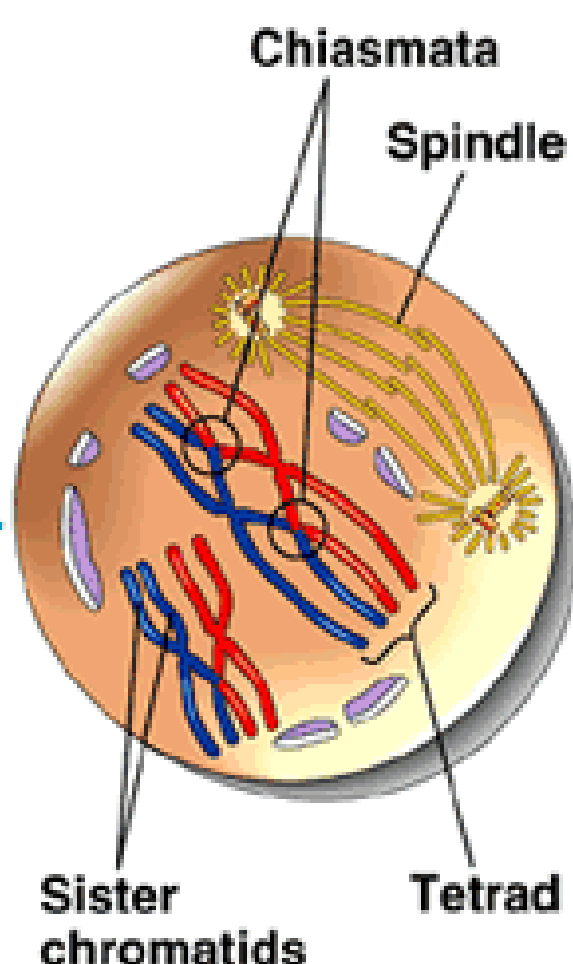
prophase I

metaphase I

anaphase I

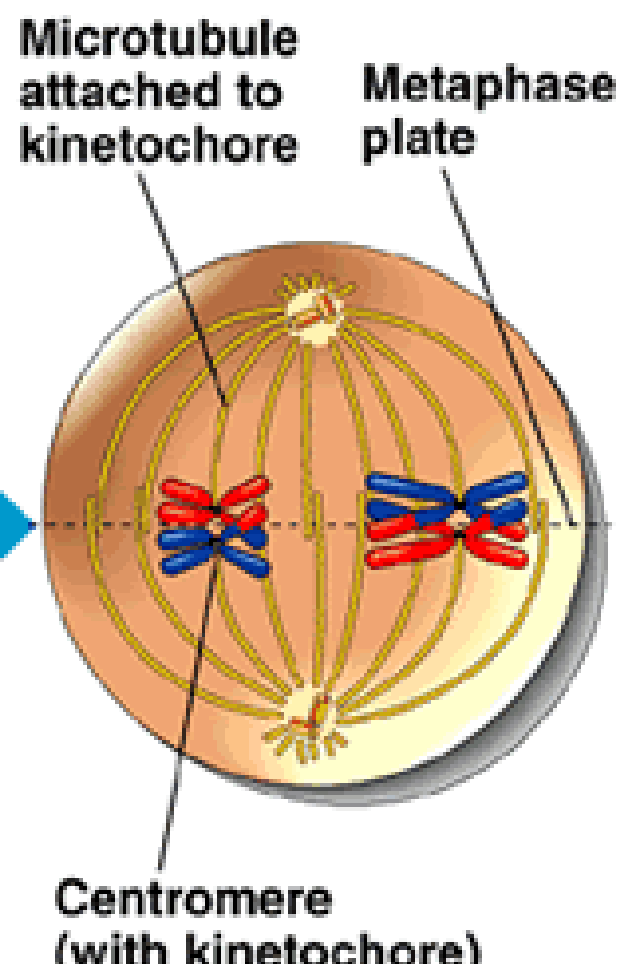


Chromosomes duplicate

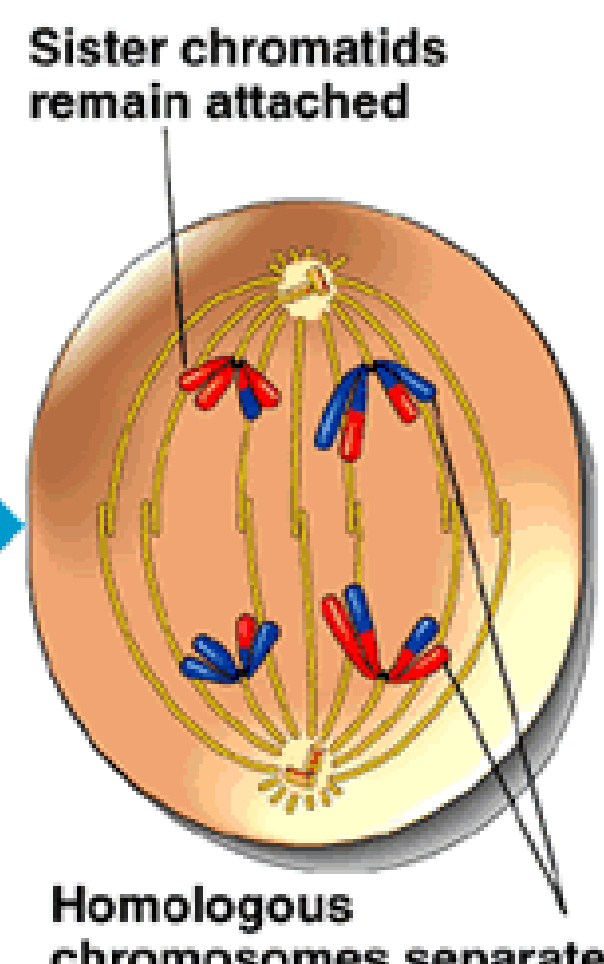


Homologous chromosomes pair and exchange segments

Synapsis - pairing of homologs to form



Tetrads line up



Pairs of homologous chromosomes split up



Equational Division

telophase & cytokinesis

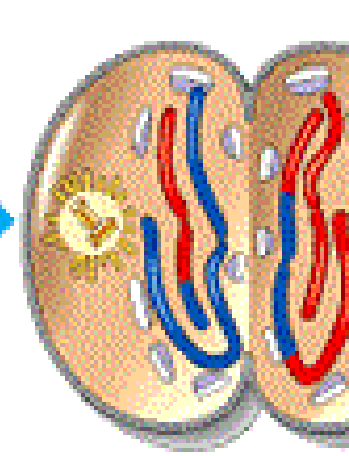
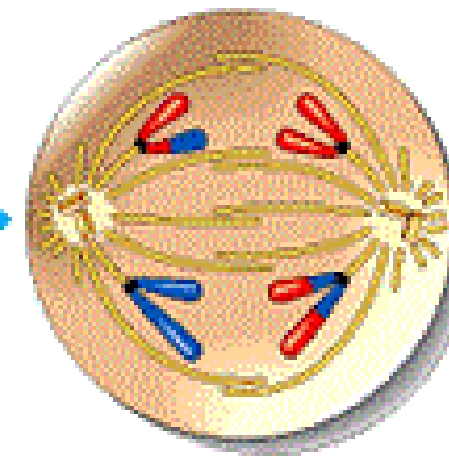
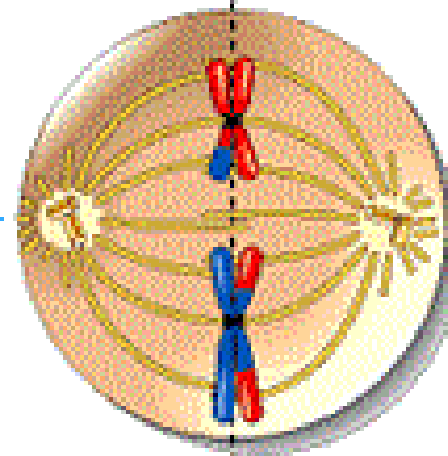
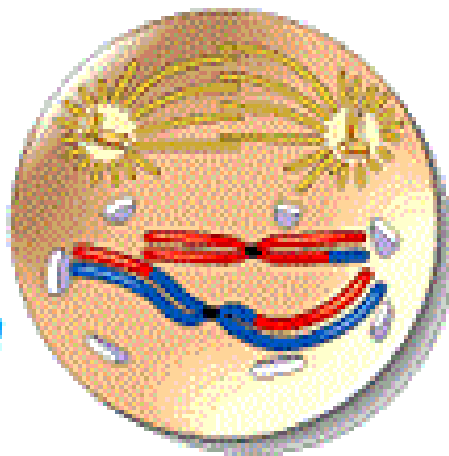
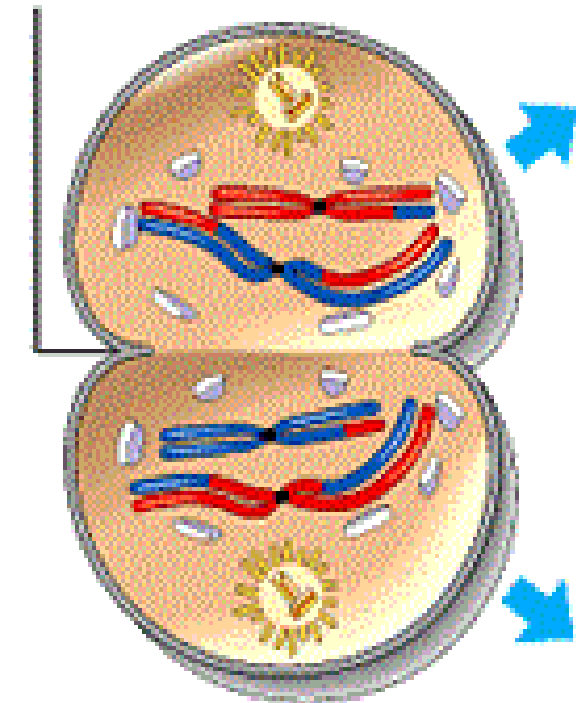
prophase II

metaphase II

anaphase II

telophase

Cleavage furrow

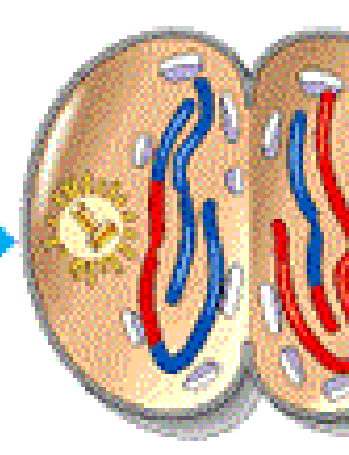
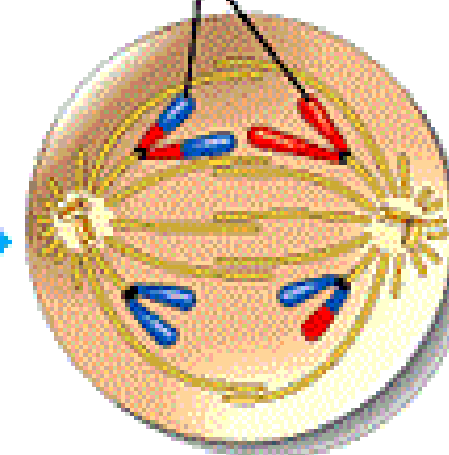
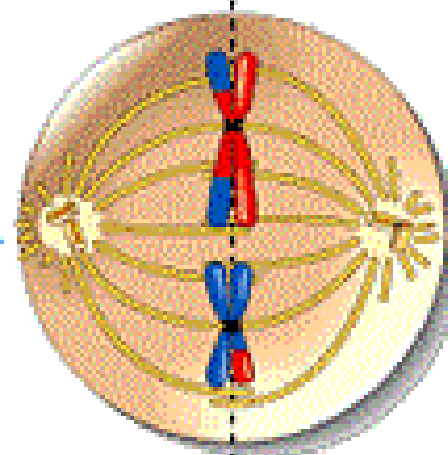


MEIOSIS II

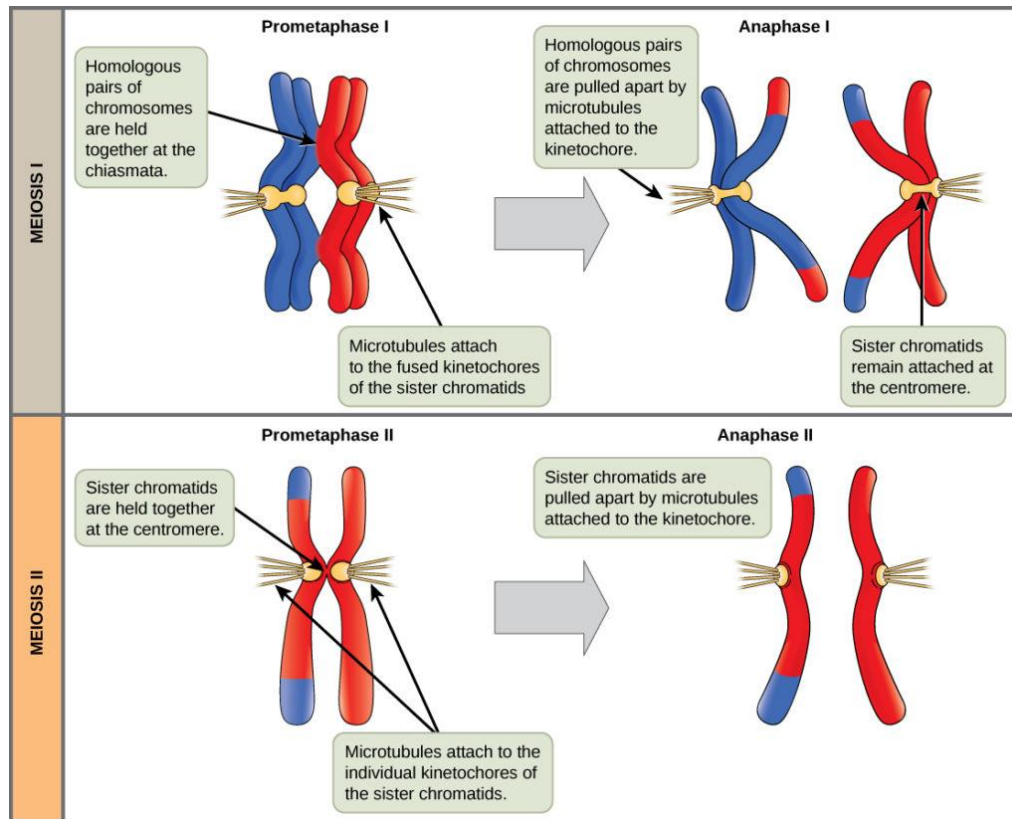
Sister chromatids separate

Haploid daughter cells forming

Two haploid cells form; chromosomes are still double



During another round of cell division, the sister chromatids finally separate; four haploid daughter cells result, containing single chromosomes



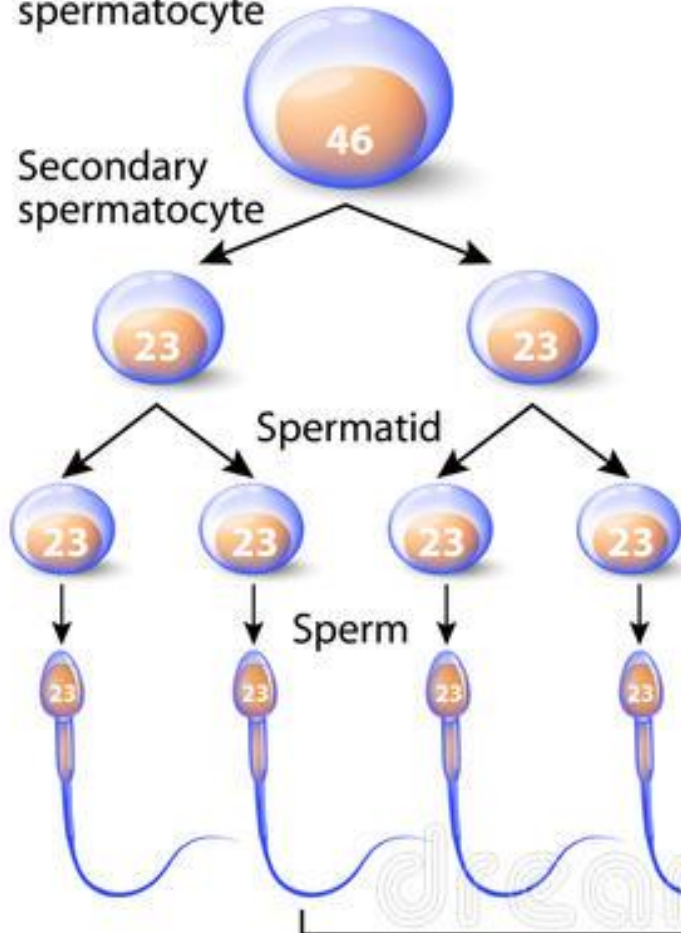
COMPARISON



Gametogenesis: Spermatogenesis and Oogenesis

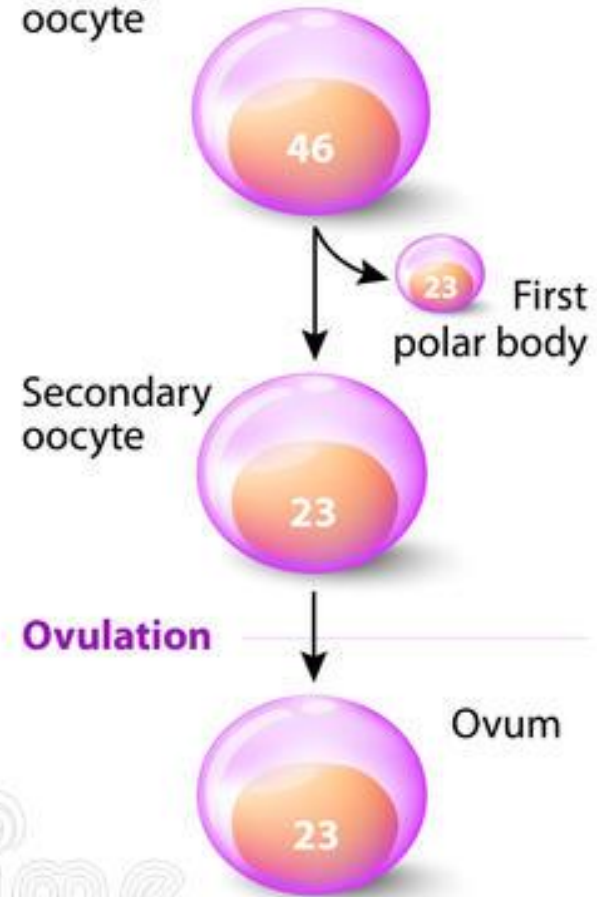
Spermatogenesis

Primary spermatocyte



Oogenesis

Primary oocyte





<https://bit.ly/2IqkuC9>

Spermatogenesis

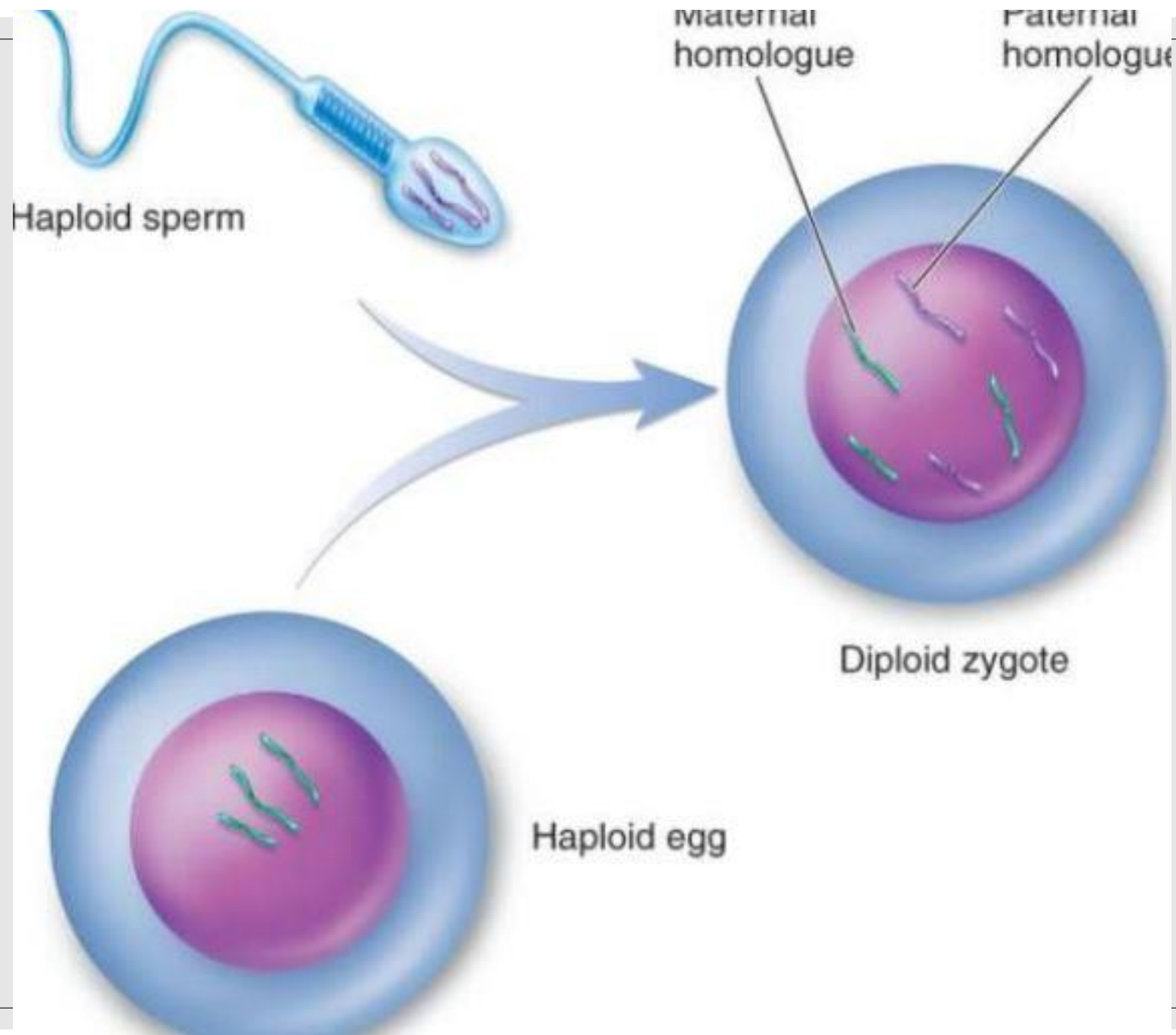


<https://bit.ly/34Q645v>

Oogenesis



Fertilization





<https://bit.ly/3jY9ZUw>

Fertilization

Sex ratio

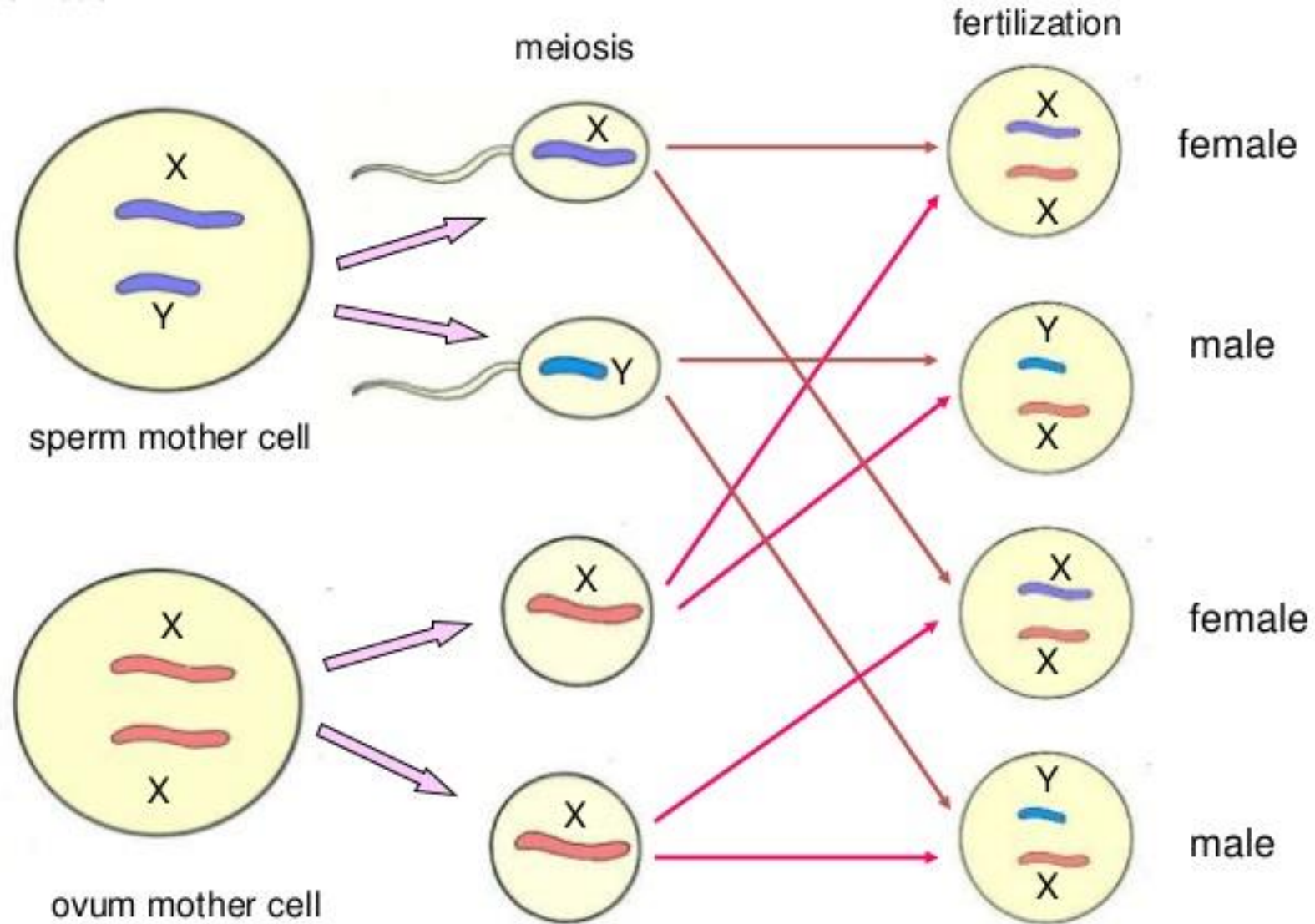


Table 1.2. Characteristics of Mitosis and Meiosis

Mitosis	Meiosis
1. An equational division that separates sister chromatids 2. One division per cycle, i.e., one cytoplasmic division (cytokinesis) per equational chromosomal division 3. Chromosomes fail to synapse; no chiasmata form; genetic exchange between homologous chromosomes does not occur 4. Two products (daughter cells) produced per cycle 5. Genetic content of mitotic products are identical 6. Chromosome number of daughter cells is the same as that of the mother cell 7. Mitotic products are usually capable of undergoing additional mitotic divisions 8. Normally occurs in most all somatic cells 9. Begins at the zygote state and continues through the life of the organism	1. The first stage is a reductional division which separates homologous chromosomes at first anaphase; sister chromatids separate in an equational division at second anaphase 2. Two divisions per cycle, i.e., two cytoplasmic divisions, one following reductional chromosomal division and one following equational chromosomal division 3. Chromosomes synapse and form chiasmata; genetic exchange occurs between homologues 4. Four cellular products (gametes or spores) produced per cycle 5. Genetic content of meiotic products are different; centromeres may be replicas of either maternal or paternal centromeres in varying combinations 6. Chromosome number of meiotic products is half that of the mother cell 7. Meiotic products cannot undergo another meiotic division although they may undergo mitotic division 8. Occurs only in specialized cells of the germ line 9. Occurs only after a higher organism has begun to mature; occurs in the zygote of many algae and fungi

BREATHE.

