

MITOSIS

Prophase

Duplicated chromosome
(two sister chromatids)

Chromosome replication

Parent cell
(before chromosome replication)

$2n = 6$

Chromosome replication

Chiasma (site of crossing over)

MEIOSIS I

Prophase I

Tetrad formed by
synapsis of homologous
chromosomes

Metaphase

Chromosomes
positioned at the
metaphase plate

Tetrads
positioned at the
metaphase plate

Metaphase I

Anaphase
Telophase

Sister chromatids
separate during
anaphase

Homologues
separate
during
anaphase I;
sister
chromatids
remain together

Daughter
cells of
meiosis I

Anaphase I
Telophase I

Haploid
 $n = 3$

$2n$

$2n$

Daughter cells
of mitosis

n

n

n

n

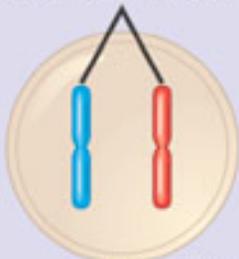
Daughter cells of meiosis II

MEIOSIS II

Sister chromatids separate during anaphase II

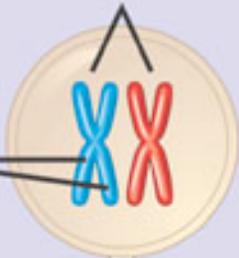
Interphase

Homologous pair of chromosomes in diploid parent cell



Chromosomes replicate

Homologous pair of replicated chromosomes



Sister chromatids

Diploid cell with replicated chromosomes

Meiosis I



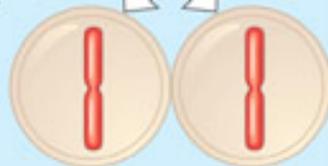
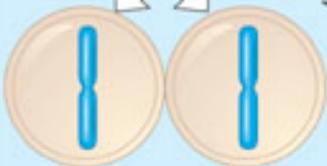
1 Homologous chromosomes separate



Haploid cells with replicated chromosomes

Meiosis II

2 Sister chromatids separate



Haploid cells with unreplicated chromosomes

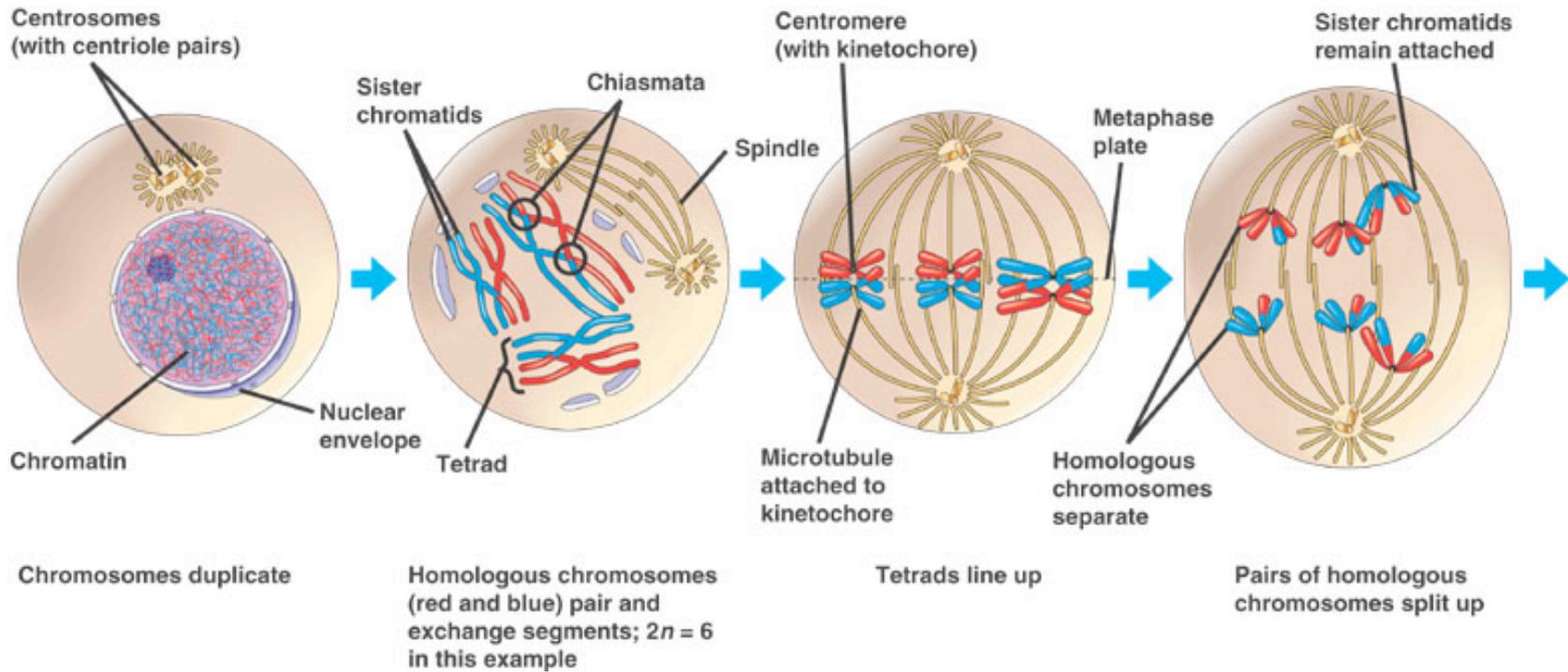
INTERPHASE

MEIOSIS I: Separates homologous chromosomes

PROPHASE I

METAPHASE I

ANAPHASE I



MEIOSIS II: Separates sister chromatids

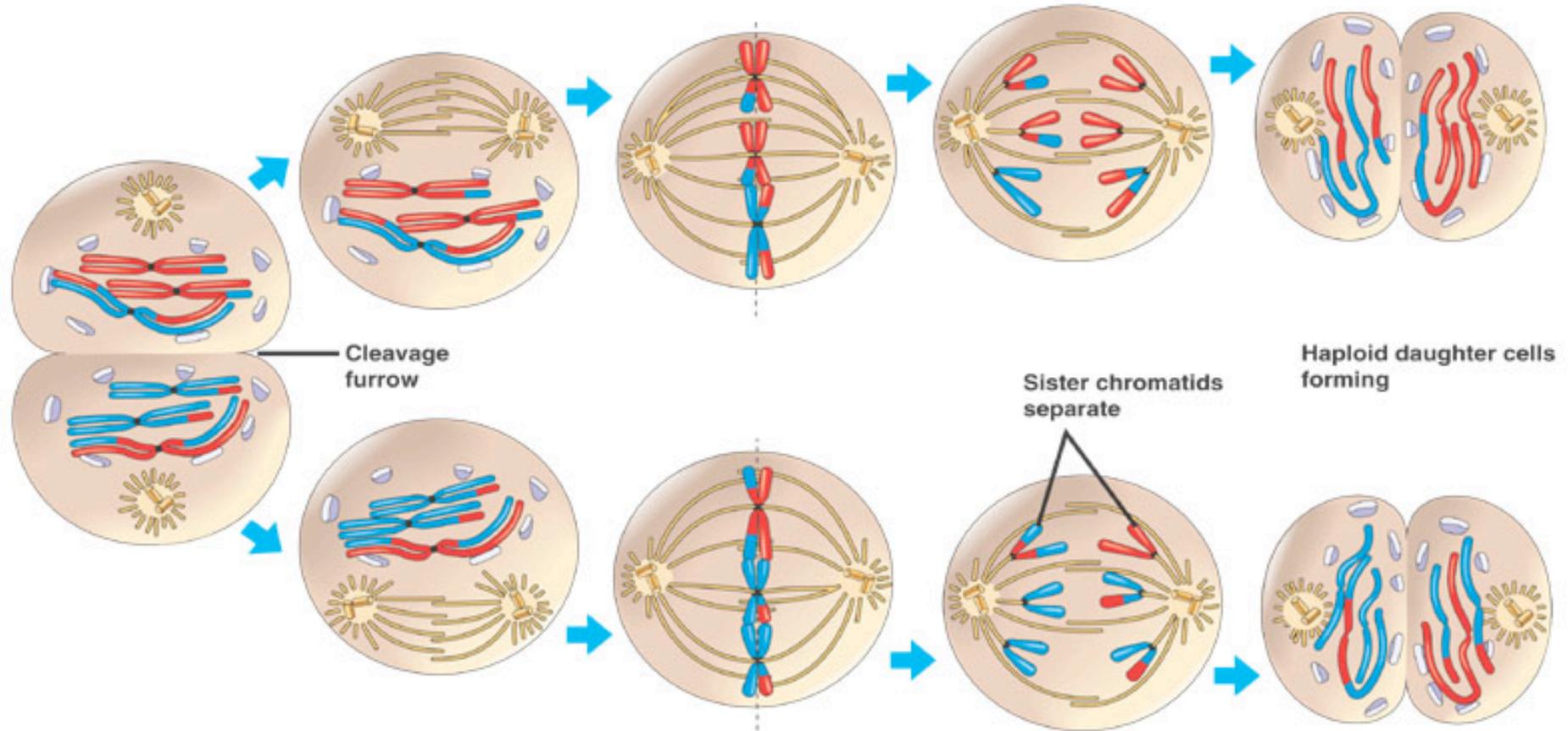
TELOPHASE I AND
CYTOKINESIS

PROPHASE II

METAPHASE II

ANAPHASE II

TELOPHASE II AND
CYTOKINESIS



Cleavage
furrow

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