

GLOSSARY

A

anaphase a phase of mitosis and meiosis in which the chromosomes separate (150)

asexual reproduction the production of offspring that does not involve the union of gametes (156)

autosome a chromosome that is not a sex chromosome (146)

B

binary fission an asexual cell division of prokaryotes that produces identical offspring (148)

C

cell cycle the events of cell division; includes interphase, mitosis, and cytokinesis (149)

cell plate a membrane that divides newly forming plant cells following mitosis (151)

centriole a structure that appears during mitosis in animal cells (150)

centromere a region of the chromosome where the two sister chromatids are held together and which is the site of attachment of the chromosome to the spindle fibers during mitosis (146)

centrosome a dark body containing a centriole in animal cells but not in plant cells; spindle fibers radiate from the centrosome in preparation for mitosis (150)

chromatid one of two identical parts of a chromosome (146)

cleavage furrow the area of the cell membrane that pinches in and eventually separates the dividing cell (151)

crossing-over the exchange of genes by reciprocal segments of homologous chromosomes during meiosis (153)

cytokinesis the division of the cytoplasm of one cell into two new cells (149)

D

diploid a cell that contains both chromosomes of a homologous pair (147)

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G

gamete a reproductive cell (153)

genetic recombination the new mixture of genetic material after crossing-over has taken place (154)

G₀ phase a phase of the cell cycle in which the cell is not dividing and its DNA is not replicating (149)

G₁ phase the first period of interphase, in which the cell doubles in size (149)

G₂ phase the final period of interphase, in which the cell undergoes rapid growth and prepares for mitosis (149)

H

haploid having only one chromosome of each homologous pair (147)

histone a protein molecule that DNA wraps around during chromosome formation (145)

homologous chromosome one of a pair of morphologically similar chromosomes (146)

I

independent assortment during meiosis, the random distribution of genes from different chromosomes to the gametes (154)

interphase a period of cell growth and development that precedes eukaryotic cell nuclear division (149)

K

karyotype a picture of an individual's chromosomes (147)

kinetochore a disk-shaped protein found in the centromere region of a chromosome that attaches the chromosomes to the mitotic spindle (150)

kinetochore fiber a spindle fiber that extends from the centrosome at one pole of the cell to a chromatid during mitosis (150)

M

meiosis the process of nuclear division that reduces the number of chromosomes in a cell by half (148)

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metaphase the second phase of mitosis, during which all the chromosomes move to the cell's equator (150)

mitosis eukaryotic nuclear division (148)

mitotic spindle the array of spindle fibers that serve to divide the chromatids during nuclear division (150)

M phase mitosis; the phase of cell division in which the nucleus divides (148)

O

oogenesis the production of mature egg cells (155)

P

polar body one of two small cells produced and discarded during each of the two meiotic divisions that yield the haploid egg (156)

polar fiber fibers that extend across a dividing cell from centrosome to centrosome (150)

prophase the first stage of mitosis and meiosis, characterized by condensation of chromosomes (150)

S

sex chromosome a chromosome that determines sex (146)

sexual reproduction the production of offspring from the combination of genetic material from two parent organisms (156)

spermatid in meiosis, a haploid cell that develops into a mature sperm cell (156)

spermatogenesis the production of sperm cells (155)

S phase the second period of interphase during which replication of DNA occurs (149)

spindle fiber one of the microtubules that extend across a dividing eukaryotic cell; assists in the movement of chromosomes (150)

synapsis the pairing of homologous chromosomes during meiosis (153)

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T

telophase the final stage of mitosis during which a nuclear membrane forms around each set of new chromosomes (151)

tetrad a group of two homologous chromosomes during meiosis (153)