

SUPPLEMENTAL INSTRUCTION FOR SURVEY OF BIOLOGY by Richard X. Thripp
Week 9, Fall 2009, Oct. 27 / 28 / 29. Mitosis & Meiosis Ch. 8. daytonastate.org/biology

A _____ is a complete set of an organism's genes.

What is abnormal cell division? _____

A _____ is a numbered display of an organism's chromosomes, sorted by type and size.

Body cells (i.e. heart, brain, liver, skin, etc.) are _____ ploid in animals (2N: 2 sets of chromosomes).

Germ cells divide to make _____ s (sperm or eggs). They are _____ ploid in animals (1N).

Humans have _____ autosomal chromosomes (22 pairs) and _____ sex chromosomes.

Humans are by default female (XX). If the "master switch gene" is on, our sex chromosomes are _____

and we become male. || A _____ is half of a duplicated chromosome.

_____ is relaxed chromosomes in the interphase nucleus.

ALL cells in your body are diploid and have 46 chromosomes EXCEPT:

- 1.) Sperm in men and eggs in women which have _____ chromosomes each (haploid).
- 2.) Cancerous cells, which divide uncontrolled and may have abnormal chromosomes.
- 3.) People with _____ syndrome (trisomy 21, 47 chromosomes) or abnormal sex chromosomes.

All dogs have 78 chromosomes (39 pairs): 76 autosomes (38 pairs) and 2 sex chromosomes.

After mitosis, a somatic cell in a dog has _____ chromosomes (2N / diploid).

After meiosis, a germ cell (sperm or egg) in a dog has _____ chromosomes (1N / haploid).

Cells are in _____ 10% of the time, which has 4 phases which can be remembered as PMAT.

Prophase (3%): _____ membrane and _____ disassemble, _____ s move to poles, chromatin condenses into chromosomes, _____ fibers form.

Metaphase (4%): Chromosomes are lined up at the _____ (middle).

Anaphase (1%): Chromatids separate and move AWAY from the equator (toward the _____ s), now called chromosomes. Spindle fibers shorten by dis_____.

Telophase (2%): CYTOKINESIS (split in two by contracting ring of microfilaments) by cleavage _____ in animals or _____ in plants. Chromosomes BEGIN to relax and the nuclear membrane and nucleolus reassemble.

Cells are in _____ 90% of the time, which consists of:

G1: Gap 1: protein _____ and cell growth.

S: DNA _____ (copying for the new cell during mitosis).

G2: Gap 2: same as gap 1 with mitosis preparation.

P → M → A → T → G1 → S → G2 → P → M → A → T → G1 → S → G2 → and so on.

In meiosis, cells divide _____ in a row. After producing two 1N cells with _____ chromosomes in Meiosis I (crossing over, etc.), the new cells split again (Meiosis II), producing 4 _____ ploid cells with half the DNA of the parent and unduplicated chromosomes (i.e. 39 of 78 in dogs).

Brain and spinal cord cells enter _____, a “resting” or non-dividing stage.

A _____ cancerous tumor grows wildly but does not invade neighboring cells.

A _____ cancerous tumor grows wildly AND invades neighboring cells.

_____ is when cancerous cells migrate through the lymph or circulatory system.

_____ chromosomes have the same genes but may code for different _____ s (variations), i.e. blue or brown eyes.

In meiosis, independent _____ is when every chromosome pair orients independently of the others. Crossing over is homologous chromosomes exchanging DNA. Also: re _____ ion.

A _____ is the joining point of two chromatids.

A _____ is one end of a chromatid.

DNA is copied in the _____-phase of interphase. Interphase is not a phase of _____ or meiosis.

_____ syndrome has X0 sex chromosomes (1 instead of 2; boyish girl).

_____ syndrome has XXY sex chromosomes (3 instead of 2; girlish boy).

What syndrome results from XYY sex chromosomes? _____

Prophase = pre (first); Metaphase = middle; Anaphase = away; Telophase = end

miTosis is for my TOes . . . mEiosis is for my Eggs (or sperm)