CHROMOSOME NUMBERS IN CELLS

- **Haploid / Monoploid (1n)** – Gametes (male sperm or _____ grains, or female egg cells) contain _____ set of chromosomes from one parent. Gametes are called haploid.
- **Diploid (2n)** – Body cells apart from gametes have _____ sets of chromosomes (2n) - one set from the father and the other set from the mother. These cells are called diploid.
- **Example in Humans** – In human sperm or egg cells, there are _____ chromosomes. After fertilisation or joining of the sperm and the egg, the fertilised cell (zygote) has _____ chromosomes (23 pairs). From this single cell, all of our body cells (somatic cells) divide and grow.

2 TYPES OF CELL DIVISION - MEIOSIS AND MITOSIS

- **Meiosis** is the process of cell division that usually forms the _____ (male sperm or pollen grain, and female ovum). One diploid cell (2n) in the male or female reproductive organs (testes and ovaries) produces _____ haploid/monoploid cells (1n). These 4 cells become the 4 sperm cells in males, or 1 _____ and 3 _____ bodies in females.
- **Mitosis** is the process that produces cells with the _____ chromosome number as the parent cell. Usually one diploid cell produces 2 new 'daughter' cells that are also _____. Mitosis produces all human body cells except the gametes.
- In humans, the gametes are formed by _____, the zygote if formed by fertilisation, and the rest of the growth of the organism is by _____
- **Prophase, Metaphase, Anaphase and Telophase** are the 4 phases in both meiosis and mitosis.
- **Interphase** is the _____ phase when cells are not dividing.

TERMS RELATING TO MEIOSIS AND MITOSIS

- **Chromosome** – A chromosome is a threadlike structure in the _____. It carries the genetic material in the form of _____ made of DNA. Chromosomes in human body cells (somatic cells) are in pairs, with one of each pair deriving from the _____ via the egg and the other deriving from the father via the _____. Human body cells have 46 chromosomes, whereas gametes (sperm and egg cells) have only 23 chromosomes.
- **Chromatid** – In the two cell division processes, a chromatid is one of the two daughter strands of a replicated chromosome. Each chromatid separates and becomes a daughter chromosome.
- **Centromere** – The centromere is the central point of a chromosome at which the chromatids are _____ together. The spindle _____ attach at the centromere. These spindle fibres serve to '_____' the chromatids apart during anaphase.
- **Chromatin** – Chromatin is the less distinct fibril form of chromosomes during the resting phase called _____
- **Prophase** – Prophase is the first stage during mitosis and meiosis, during which the indistinct chromatin threads condense and are easily_____, the nuclear _____ disappears and a spindle forms.
- **Metaphase** – Metaphase is the second phase of mitosis and meiosis during which the chromosomes line up at the _____ of the cell.
- **Anaphase** – Anaphase is the stage in mitosis and meiosis that follows metaphase. The chromosomes move apart towards the _____ of the cell.
- **Telophase** – Telophase is the phase which follows anaphase in both mitosis and meiosis. The nuclear membrane _____ and daughter cells form. Two daughter cells form in mitosis. Four cells form in meiosis (i.e. These 4 cells become the 4 sperm cells in human _____, or 1 egg and 3 polar bodies in human _____)
- **Interphase** is the resting phase when cells are not _____.