INTRO TO REPRODUCTION

EQ: How do organisms reproduce?

Types of reproduction

- **Asexual Reproduction** – generation of offspring from a single parent
  - Most common in microorganisms
  - Examples:
    - Vegetative Reproduction – plants that generate new plants from stems, leaves, or roots
    - Budding – A new organism grows from parents body
    - Regeneration – A piece of the parents body develops into a new organism

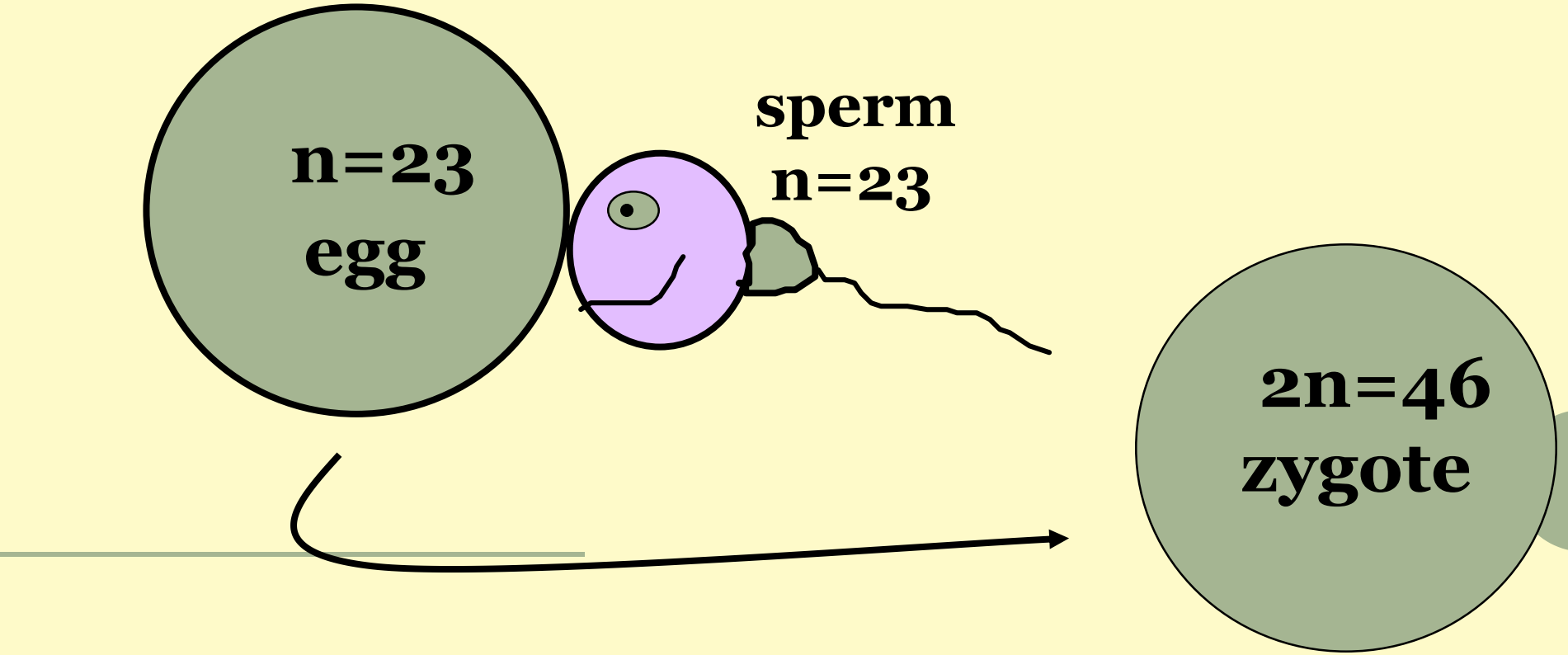
Types of reproduction

- **Sexual Reproduction** – always involves combining genetic material from two parents
  - Two gametes fuse together in **fertilization**, to produce a fertilized egg, or **zygote**

- **Gametes** – sex cells. Sperm & Eggs (Ova)
  - Produced in a process called **Meiosis**
  - are **Haploid** cells – cells with only a single set of chromosomes

Fertilization

- The fusion of a sperm and egg to form a zygote.
- A zygote is a fertilized egg



Homologous Chromosomes

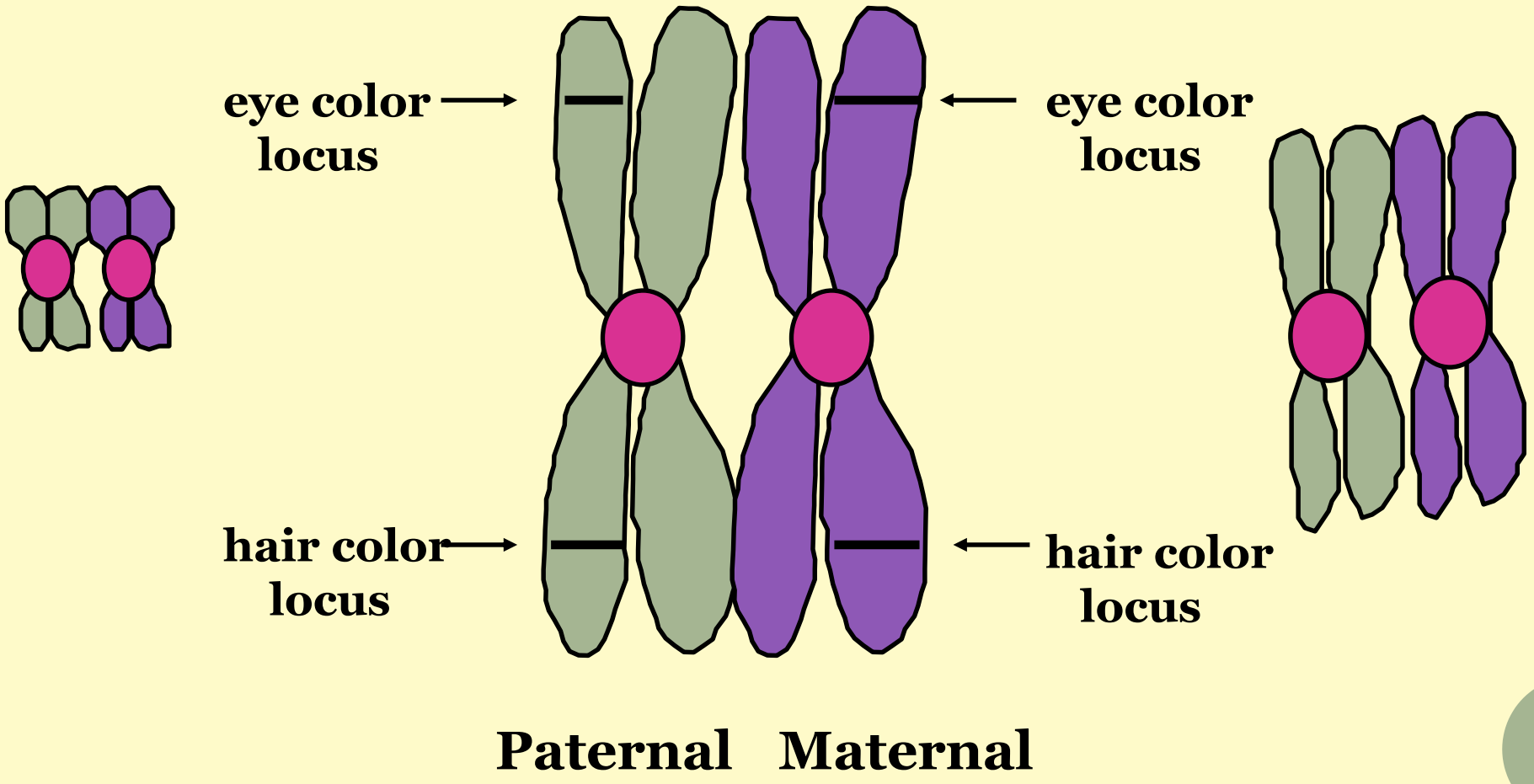
- Pair of chromosomes (maternal and paternal) that are similar in shape and size.
- Homologous pairs carry genes controlling the same inherited traits.
- Humans have 23 pairs of homologous chromosomes.

  22 pairs of autosomes

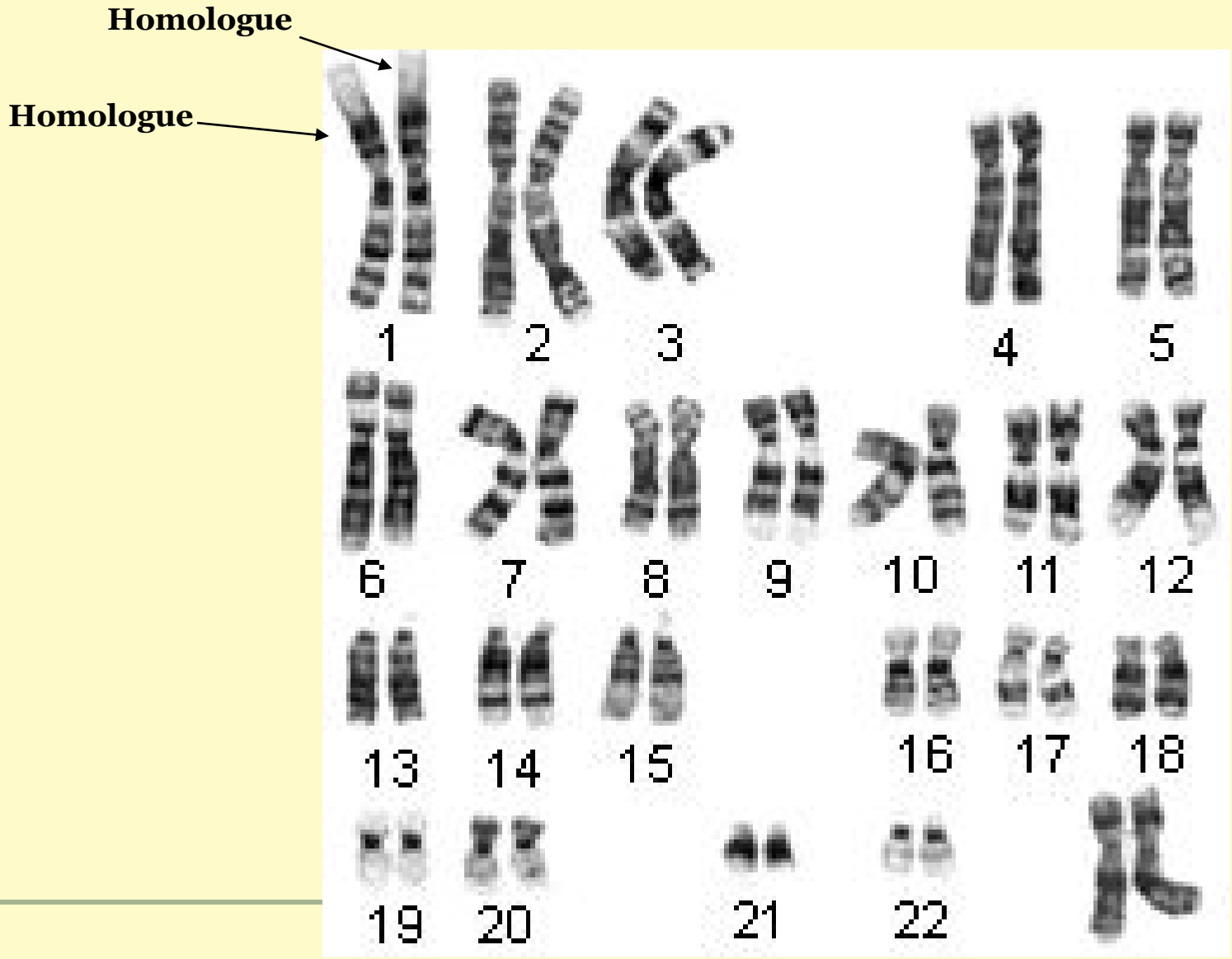
  1 pair of sex chromosomes

Homologous Chromosomes

(because a homologous pair consists of 4 chromatids it is called a "Tetrad")



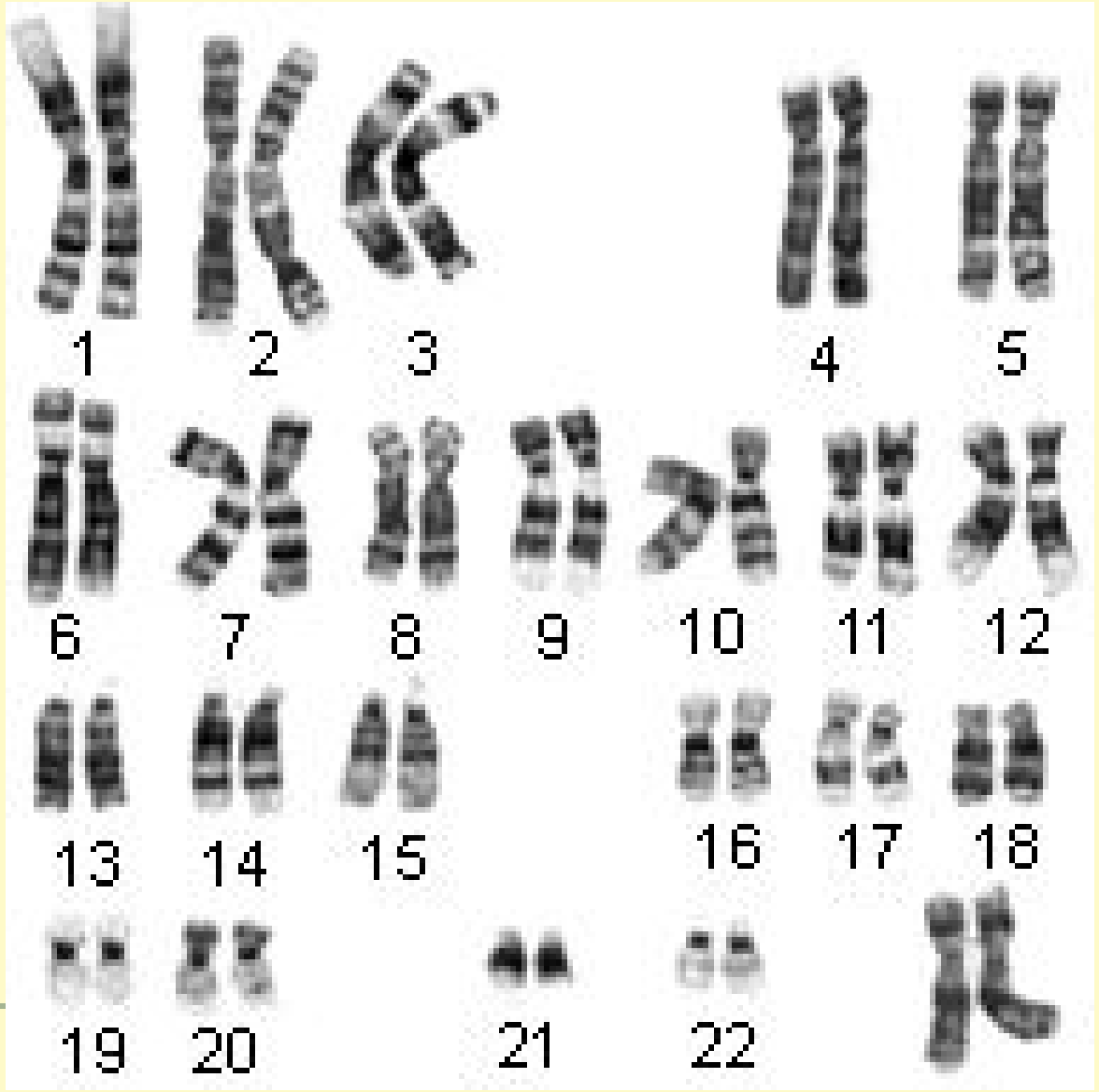
Humans have 23 Sets of Homologous Chromosomes
Each Homologous set is made up of 2 Homologues.



Autosomes

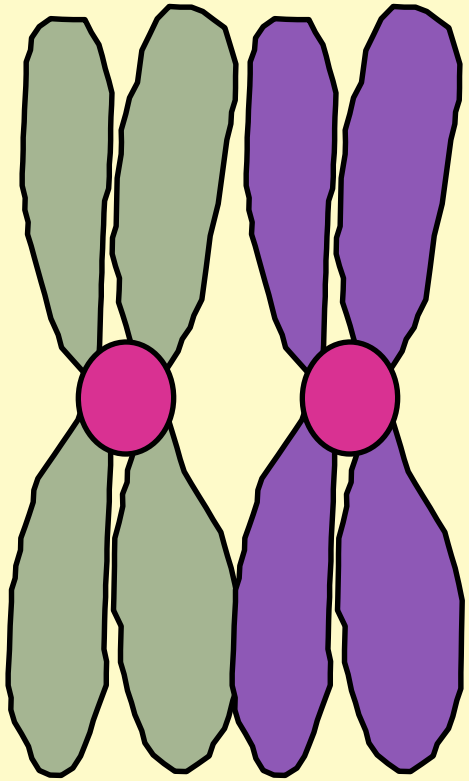
(The Autosomes code for most of the offspring's traits)

In Humans the "Autosomes" are sets 1 - 22



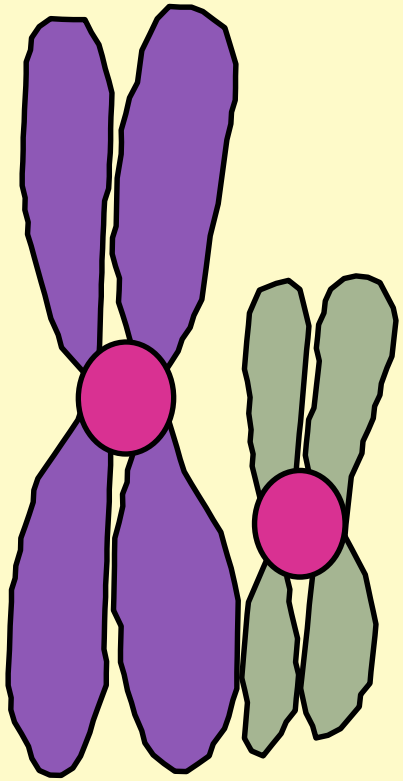
Sex Chromosomes

The Sex Chromosomes code for the sex of the offspring.



XX chromosome - female

In Humans the "Sex Chromosomes" are the 23rd set



XY chromosome - male

Meiosis

- the process by which ”gametes” (sex cells) , with half the number of chromosomes, are produced.
- During Meiosis diploid cells (body cells) are reduced to haploid cells (gametes)

  Diploid (2n) → Haploid (n)

- If Meiosis did not occur the chromosome number in each new generation would double…. The offspring would die.