

HERIDITY
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- ◉ Genes
- ◉ Cell Division
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HEREDITY

- The passing of traits/ characteristics from parent to offspring

THE CELL

- ⦿ Contains a nucleus
- ⦿ Nucleus contains chromosomes

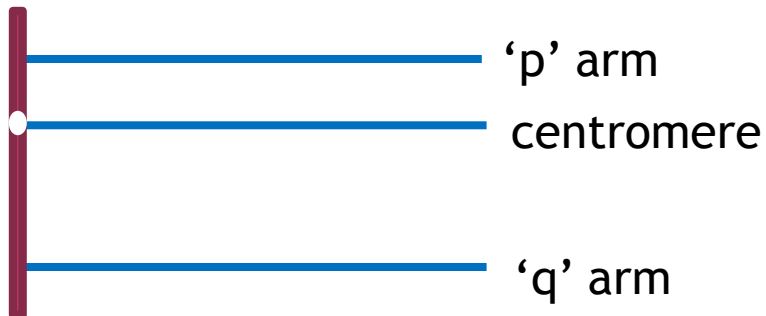
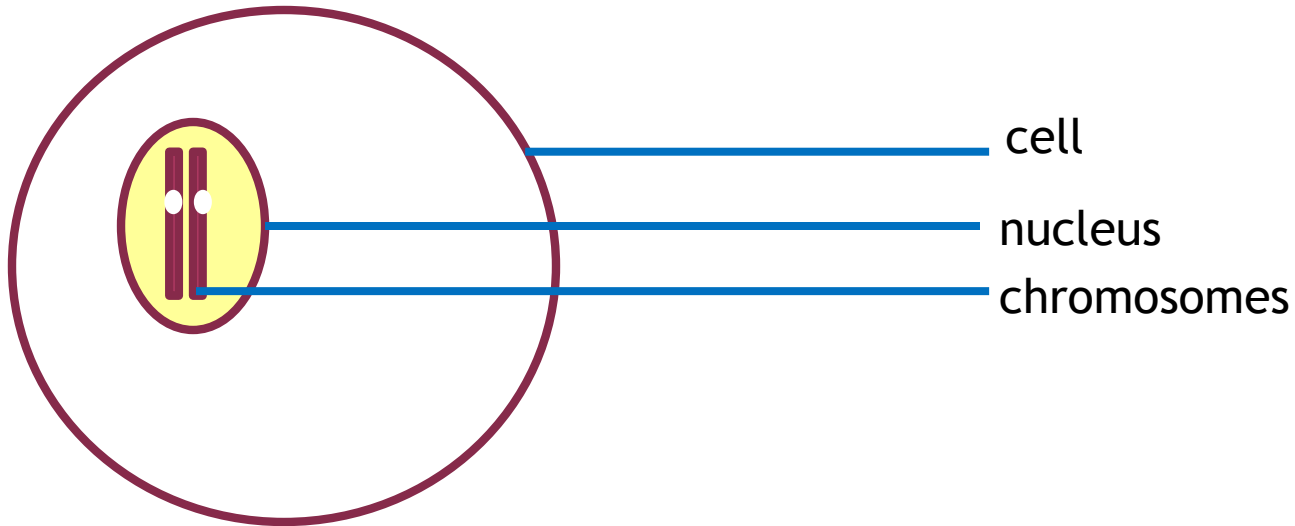
CHROMOSOMES

- ◉ Are long and thin
- ◉ Twist around each other
- ◉ Contain **genes**
 - Made up of Deoxyribonucleic Acid (DNA)
- ◉ Are in pairs
 - **Homologous pairs**

CHROMOSOMES

- ⦿ Each chromosome has:
 - Centromere - separates the chromosome into two parts called 'arms'
 - 'p' arm - shorter arm
 - 'q' arm - longer arm

CHROMOSOMES



CHROMOSOMES

- ⦿ Males - 22 pairs of XX chromosomes and 1 pair of XY chromosomes
 - 46 chromosomes in each cell
- ⦿ Females - 23 pairs of XX chromosomes
 - 46 chromosomes in each cell
- ⦿ The male chromosomes determines the sex of the child

GENES

- ◉ Contain the information that is passed on from parent to offspring
- ◉ Made up of **DNA**
- ◉ Each parent passes on one form of each gene to the offspring

SO

GENES ARE ON THE CHROMOSOMES

CHROMOSOMES ARE IN THE NUCLEUS

THE NUCLEUS IS IN THE CELL

CELL DIVISION

○ Two types:

■ (1) MITOSIS

■ (2) MEIOSIS

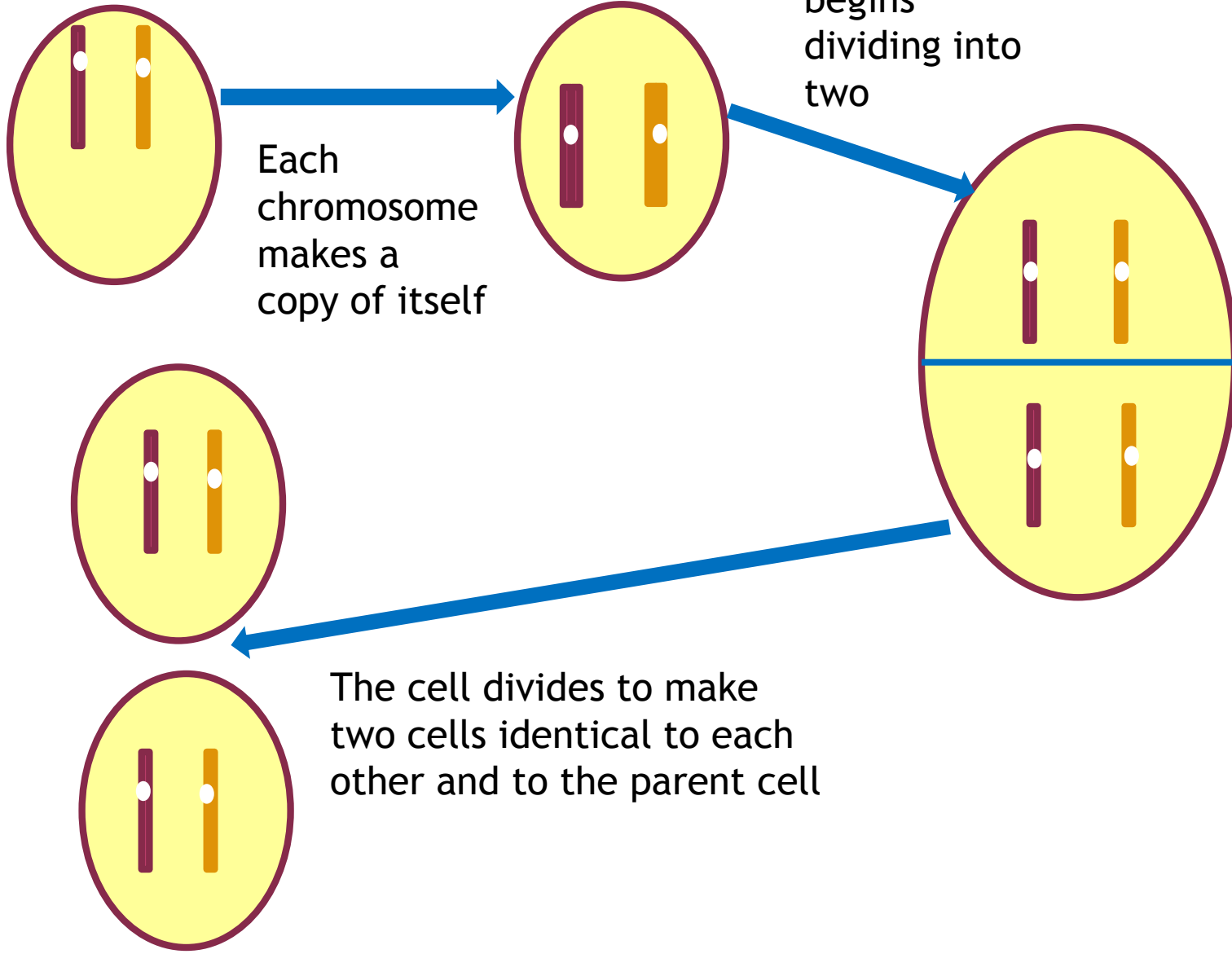
MITOSIS

- This is a form of cell division that makes identical cells
- This type of cell division is for GROWTH
- Takes place in all the body cells
 - Except sperm and egg
- Human cells each have 46 chromosomes
 - They are called **diploid** cells

MITOSIS

- First each chromosome makes a copy of itself
- Then the nucleus divides into two
- The whole cell then divides into two cells
- Each cell is exactly like the parent cell
- Each cell has the same number of chromosomes as the parent cell
- Each cell has the same genes as the parent cell

MITOSIS



MEIOSIS

- This is a form of cell division that halves the number of chromosomes in the cell
- Takes place only in the SPERM AND EGG
- Each sex cell (sperm and egg) has only 23 chromosomes
 - Half of what the other body cells have
 - They are called **haploid** cells

MEIOSIS

- ⦿ First each chromosome makes a copy of itself
- ⦿ Then the nucleus divides into two
- ⦿ The whole cell then divides into two cells
- ⦿ Each new cell then divides again into two cells
- ⦿ Each resulting cell has half the number of chromosomes as the parent cell

MEIOSIS

