

WJEC Wales Biology GCSE

2.2 (a) to (d) - Cell Division

Flashcards

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What is a chromosome?



What is a chromosome?

- A linear DNA molecule tightly coiled around proteins
- Contains genes



How many chromosomes do human body cells contain?



How many chromosomes do human body cells contain?

46 chromosomes (23 pairs)



What are sex chromosomes?



What are sex chromosomes?

A pair of chromosomes that determines sex:

Males have an X and a Y chromosome

Females have two X chromosomes



What is mitosis?



What is mitosis?

- A form of cell division that produces two 'daughter' cells
- Both genetically identical to the parent cell with the same number of chromosomes (46 chromosomes)
- Involves one division



Why is mitosis important in organisms? (4)



Why is mitosis important in organisms? (4)

- Asexual reproduction
- Growth
- Repair of damaged cells
- Cell replacement



What is meiosis?



What is meiosis?

- A form of cell division involved in the formation of gametes
- Chromosome number is halved (23 chromosomes)
- Involves two divisions, producing four gametes



What are gametes?



What are gametes?

- Sex cells (sperm cells, egg cells)
- Contain half the chromosome number



Why is meiosis important for sexual reproduction?



Why is meiosis important for sexual reproduction?

- Increases genetic variation
- Ensures that the resultant zygote has a full set of chromosomes



Compare mitosis and meiosis (5)



Compare mitosis and meiosis (5)

| Mitosis | Meiosis |
|--|--|
| Occurs in all non-reproductive cells | Occurs only in reproductive cells |
| Produces two daughter cells | Produces four daughter cells |
| Daughter cells genetically identical | Daughter cells genetically different |
| Daughter cells have 46 chromosomes | Daughter cells have 23 chromosomes |
| Occurs for the growth, repair and replacement of damaged cells | Occurs for the formation of gametes during sexual reproduction |



What is cancer?



What is cancer?

- Non-communicable disease
- Uncontrolled mitosis results in the formation of a primary tumour
- Tumour cells break off and spread to other tissues forming secondary tumours

