

Cell division, variation and evolution

**What does mitosis produce?**

Cell division, variation and evolution

**When does mitosis occur?**

Cell division, variation and evolution

**What does meiosis produce?**

Cell division, variation and evolution

**How does random fertilisation cause variation?**

Cell division, variation and evolution

**Diploid and haploid numbers of chromosomes in humans**

Cell division, variation and evolution

**What causes variation within a species?**

Cell division, variation and evolution

**Give an example of environmental variation.**

Cell division, variation and evolution

**What is a mutation?**

During growth, repair, cloning and asexual reproduction.

Two cells with identical sets of chromosomes, genetically identical to the parent cell.

Gametes are genetically different and any sperm can fuse with any egg, so offspring have different combinations of alleles.

Four genetically different haploid gametes, each with half the number of chromosomes.

Genetic differences, environmental differences, or a combination of both.

Diploid is 46. Haploid is 23.

A rare, random change in genetic material that can be inherited.

A scar, or body mass affected by diet, or plant height affected by light.

Cell division, variation and evolution

**Outline Darwin's theory of natural selection.**

Cell division, variation and evolution

**What does evolution mean?**

Cell division, variation and evolution

**How does antibiotic resistance increase in bacteria?**

Cell division, variation and evolution

**Why are infections with resistant bacteria difficult to control?**

A change in the inherited characteristics of a population over many generations.

Variation exists; the better adapted survive and reproduce; they pass on their alleles; the proportion with those alleles rises over generations.

The antibiotic no longer kills the bacteria, so the infection persists and can spread.

A mutation gives resistance. The antibiotic kills non-resistant bacteria, the resistant ones survive, reproduce and pass on the allele.