|  |
| --- |
| **DNA** |
| DNA | Deoxyribose nucleic acid. The chemical that all genetic material is made up from. |
| chromosome | Chromosomes are the long strands of DNA found in the nucleus of cells. |
| gene | A short section of DNA that codes for a protein and found on a chromosome. |
| allele | Different versions of the same gene. |
| genome | The entire set of genetic material in an organism. |

|  |
| --- |
| **Reproduction** |
| gamete | These are the sex cells (e.g. sperm and egg in animals) produced by meiosis |
| sexual reproduction | Reproduction in which gametes from two parents combine. |
| asexual reproduction | The production of genetically identical offspring from a single parent. |
| fertilisation | Fusing of a male sex cell with a female sex cell. |
| meiosis | Cell division that produces gametes in sexually reproducing organisms |
| Stages in meiosis | * Genetic material is duplicated.
* Chromosomes arranged in pairs in the centre of cell.
* First division separates the pairs of chromosomes.
* Chromosomes line up in the centre of the cell.
* Second division pulls apart the chromosome arms.
* 4 gametes produced, each with a single set of chromosomes.
 |
| Differences between mitosis and meiosis | * Meiosis produces 4 daughter cells not 2.
* Meiosis produces genetically different daughter cells.
* Meiosis produces daughter cells that half the amount of DNA compared to the parent cell.
* Meiosis involves 2 divisions.
 |

|  |
| --- |
| **Sex determination** |
| Sex chromosomes | XX in femalesXY in males |

|  |
| --- |
| **Genetic diagrams** |
| dominant | A dominant allele is the one that determines the phenotype even if there is only 1 copy present. |
| recessive | A recessive allele only affects the phenotype if 2 copies are present. |
| homozygous | Both alleles for a gene are the same. |
| heterozygous | The alleles for a gene are different. |
| genotype | The combination of alleles that you have. |
| phenotype | The characteristics that you have as a result of your genotype. |
| Punnett square | A genetic diagram used to show possible gamete combinations. |

|  |
| --- |
| **Genetic disorders** |
| Cystic fibrosis | A genetic disorder caused by a recessive allele. Sufferers produce lots of thick, sticky mucus in air passages and the pancreas. |
| Polydactyly | A genetic disorder caused by a dominant allele. Sufferers have extra fingers or toes. |
| Embryo screening | A method of determining whether an embryo has genetic disorders. |
| Reasons for embryo screening | To prevent suffering.Treating disorders costs money. |
| Reasons against embryo screening | It implies that people with genetic problems are 'undesirable'.Screening is expensive. It might lead to ‘designer babies’. |