cell part that contains chromosomes	substance carrying organism's genetic information	threadlike structure of DNA and protein found in the nucleus of cells - carries genetic information in the form of genes	having the same structural features (length) and pattern of genes
nucleus	**deoxyribo-nucleic acid**	**chromosome**	**homologous chromosomes**
photograph of an individual's chromosomes cut out and arranged according to their size	short length of DNA that carries the genetic code for a particular trait /characteristic or cell activity	different forms of the same gene - they can be dominant or recessive	parts of DNA involved in pairing - cytosine, guanine, adenine, and thymine
karyotype	**gene**	**allele**	**base**
forms the basic structural unit of DNA, composed of a sugar molecule, a phosphate group, and a base	carries instructions to the next generation and determines phenotype	a genetically determined characteristic	differences between organisms within a population - can be continuous or discontinuous
nucleotide	**DNA**	**trait**	**variation**
cell division body cells for growth and repair - produces 2 new cells genetically identical to each other and to the parent cell	cell division in testes and ovaries producing 4 new cells (gametes) – genetically different to each other, and to the parent cell	reproductive cells that contain half the number of chromosomes compared to the parent cell	a fertilised ovum/egg that contains the full set of chromosomes
mitosis	**meiosis**	**gamete**	**zygote**

reproduction involving only one parent (usually female) - offspring genetically identical to the parent and to each other	reproduction involving two parents - offspring different to the parent and to each other	organism produced asexually from one parent – offspring genetically identical to both its parent and siblings	a genetically determined characteristic
asexual reproduction	**sexual reproduction**	**clone**	**trait**
a permanent change in the base sequence of DNA	different forms of the same gene – they can be dominant or recessive	the particular alleles of an organism	the observable characteristics of an individual resulting from its genotype
mutation	**allele**	**genotype**	**phenotype**
individuals that are homozygous - will always produce the same offspring when crossed together	an individual with two alleles that are the same for a particular trait	an individual with two alleles that are different for a particular trait	cross between unknown genotype organism and a homozygous recessive to work out the genotype from the offspring
pure breeding	**homozygous**	**heterozygous**	**test cross**
allele which is always expressed even if only one is present - written with an upper-case letter. e.g. 'A'	allele which is only expressed when two of them are present - written with a lower-case letter. E.g. 'a'	diagram / family tree that shows the phenotypes of related individuals	having a single set of chromosomes (n)
dominant	**recessive**	**pedigree chart**	**haploid**

having a full set of chromosomes (2n); having a pair of each type of chromosome	individual that carries a gene for a particular recessive trait, does not express the trait, but can pass that trait on	basic building blocks of proteins	two strands of nucleotides wound around each other – structure of DNA
diploid	**carrier**	**amino acids**	**double helix**
the joining of male and female gamete	product of reproduction - a new organism produced by one or more parents	made up of amino acids. There are many types and all have important roles in living systems	a chart that shows all the possible combinations of alleles that can result from a genetic cross
fertilisation	**offspring**	**proteins**	**Punnett square**
in each new DNA double helix, one strand is from the original molecule, and one strand is new	Chromosomes X and Y that determine the sex of an individual	exchange of genetic material between homologous chromosomes	process responsible for forming new alleles
semi-conservative replication	**sex chromosomes**	**crossing over**	**mutation**
name for the offspring of the cross BB x bb and the offspring their offspring….	important to population and species survival in a changing environment	pest infestation, disease, drought, or flood could be examples of a …	each homologous pair of chromosomes lines up at equator – maternal or paternal – independently of other homologous pairs
F_1 generation F_2 generation	**variation**	**changing environment**	**independent assortment**