**Genes, Chromosomes and DNA**

**Fill in the blanks using the words: gene, chromosome, DNA, nucleus, sperm, egg**

**You can use the words more than once**

[\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene) are a section of [DNA](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#dna). [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene) is arranged into sets of [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene).

[\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene) is a large chemical information database that carries the complete set of instructions for making all the proteins a [cell](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#Cell) will ever need.

Each [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene) contains a particular set of instructions, coding for a particular protein.

[\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene) exists as two long, paired strands spiralled into the famous double helix. Each strand is made up of millions of chemical building blocks called bases. While there are only four different [chemical bases](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#Chemical base) in [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene), the order in which the bases occur determines specific instructions for building proteins, much as specific letters of the alphabet combine to form words and sentences.

[\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene) is found in the [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene) of each of the body's billions of cells. Every human cell (with the exception of mature red blood cells, which have no nucleus) contains the same [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene). Each cell has 46 molecules of double-stranded DNA. Each molecule of DNA is made up of 50 to 250 million bases housed in a [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene).

The [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene) in each chromosome contains many [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene). A gene codes for a particular protein, which in turn affects the characteristics or an organism e.g. curly hair or straight hair.

A [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene) contains instructions that allow a cell to produce a specific [protein](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#Protein) such as an [enzyme](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#Enzyme) - that initiates one specific action. There are between 50,000 and 100,000 genes, and every [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene) is made up of thousands, even hundreds of thousands, of chemical bases.

Human cells contain two sets of [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene), one set inherited from the mother and one from the father. All human cells, except the sex cells (gametes) contain 46 [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene) or 23 pairs. The gamete cells carry a single set of [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene). Each set has 23 single chromosomes. In females the gametes are called ovum ([\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene) cell) in males the gametes are called [\_\_\_\_\_\_\_\_\_](http://www.accessexcellence.org/AE/AEPC/NIH/gene27.php#gene)

