

Genetics in nature and Creatures

The instructions for making living systems are encoded into their DNA (and in the case of most viruses, RNA). DNA stands for *d*eoxyribo*n*ucleic *a*cid (for RNA, drop the “deoxy” from the beginning) and is made up of chemical instructions for manufacturing proteins—the building blocks of living cells. A complete set of instructions for making one single protein is called a gene.

Collectively, the genetic instructions required to make an entire living system are called the *genotype*, and the resultant life form exhibits the *phenotype*.

Genes are joined together in a long string of DNA, punctuated by special markers. This is then wrapped into a giant super-helix called a *chromosome*. Chromosomes can contain many tens of thousands of genes.

Creatures contains a biological modelling system that borrows many of the metaphors and concepts from biology. Digital DNA (the system in Creatures) is a digital equivalent of biological DNA. The primary differences are:

	Human DNA	Creatures DNA
Construction	23 chromosomes, diploid (46 total)	Single haploid chromosome
Chromosomes	46 (23 pairs, one set from each parent)	1
Total Genes	100,000	790

More information is available on the [Norn Genome](#) and the [Grendel Genome](#) in Creatures.