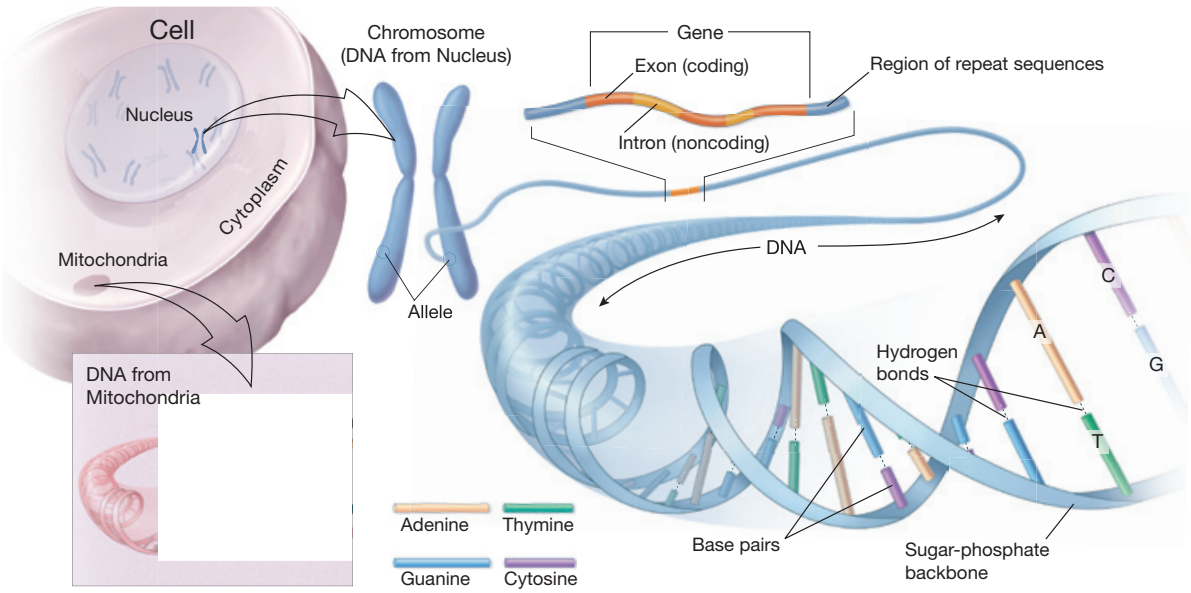
DNA

DNA stores biological information in sequences of four bases of nucleic acid—adenine (A), thymine (T), cytosine (C) and guanine (G)—which are strung along ribbons of sugar-phosphate molecules in the shape of a double helix. Because each base will only form hydrogen bonds across the helix with its opposing base (A with T, and C with G), an unzipped DNA molecule creates two templates for exact copies.

Every cell in the human body carries a bundle of DNA in its nucleus—about three billion chemical nucleotides encoding roughly 30,000 genes, discrete chunks of DNA that are translated into individual proteins. Each of the 46 chromosomes in a human cell's nucleus bears thousands of genes. Chromosomes come in pairs, one from each parent, a given gene is represented by two variants, known as alleles. Taken as a whole, this package of DNA serves as its owner's complete genetic blueprint. Just as no two humans are alike, no two blueprints—except those belonging to identical twins—are, either.



Source: "DNA--a Molecular Identity" lesson plan, Visible Proof: Forensic Views of the Body. Courtesy of the U.S. National Library of Medicine. https://www.nlm.nih.gov/exhibition/visibleproofs/education/dna/index.html