

# The DNA Files:

## Workshops and Activities



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## Glossary

- cell** - the smallest structural unit of a living thing. Cells contain DNA, and the DNA is stored in a compartment called the nucleus in lots of species, including plants and animals. Cells also contain lots of different proteins and other molecules, and other structures called organelles that have different functions. The cell is all surrounded by a cell membrane.
- climate change** - a regional change in temperature and weather patterns. Current science indicates a link between climate change over the last century and human activity, specifically the burning of fossil fuels.
- comparative genomics** - the process of learning about human genetics by comparing human DNA sequences with those from other organisms.
- DNA** - deoxyribonucleic acid: an extremely long molecule that is the main component of chromosomes and is the material that transfers inherited characteristics in all life forms. DNA is constructed in a twisted-ladder-like arrangement with the sidepieces composed of alternating phosphate and deoxyribose (which is a type of sugar) units and the rungs composed of adenine, guanine, cytosine, and thymine attached to the sugar pieces. The genetic information of DNA is encoded in the sequence of the bases and is "read" by the cell by unwinding the strands.
- evolution** - the process of change over time in the heritable characteristics, or traits, of a population of organisms.
- gene** - a sequence of DNA that provides the coded instructions for synthesis of RNA, which, when translated into protein, enables a living thing to build and maintain itself.
- genetics** - the scientific study of heredity.
- genome** - the entire genetic content of a living thing.
- life** - anything that grows by getting or making energy (for instance, by eating food), reproduces, and adapts to its environment through changes that begin internally, like DNA mutation. Viruses, for example, are not alive by this definition even though they do have DNA. They cannot reproduce independently of a host cell. Mutations in viruses are made by the host cell, which gets hijacked into copying its DNA.

**molecule** – the smallest particle of a substance that has all the characteristics of the substance.

**protein** - molecules required for the structure, function, and regulation of the body's cells, tissues, and organs. Each protein has unique functions. Proteins are essential components of muscles, skin, bones and the body as a whole.