

Name:

Date: Class Code:

### Science 10 What is DNA?

Deoxyribonucleic acid (DNA) is a molecule that contains all the information to determine who you are and what you look like.

The chemical compound that makes up DNA was first discovered by Friedrich Miescher in Germany around 1869. In 1953, Francis Crick and James Watson discovered that DNA is shaped like a ladder coiled into a 'double helix' shape.

The ‘sides’ of the ladder are a linked chain of alternating **sugar** and **phosphate** molecules.

The ‘rungs’ of the ladder are attached to the sugar molecules. Each rung is made up of two chemicals called **bases**. There are four different bases - **adenine (A), thymine (T), guanine (G) and cytosine (C)** and they link together in pairs **(A with T, C with G)** to form a rung. The order of the bases and rungs creates a kind of code for the DNA information.

### What does DNA do?



All living things contain DNA.

Your body is made up of many different chemicals. An important group of chemicals is the proteins, which build your body and help it to function.

Each protein is formed from over 100 amino acids. There are 20 different types of amino acids that can be used to make proteins.

The code in the DNA ladder’s rungs is a recipe for building **proteins**. Tiny particles called ribosomes follow the DNA recipe to bind amino acids together and build proteins. Up to 1 000 rungs might be needed to hold the recipe for just one protein.

A group of rungs that carries the recipe for one protein is called a gene. When many genes are linked together in a DNA ‘ladder’, they form a chromosome.

**What to do**



Stick the rungs to the spines to form the DNA model.

1. Cut out spines A and B.
2. Cut out the rungs.
3. Fold down the tabs so that they are at right angles to the rungs (as shown in the picture).
4. Put glue on one tab of each rung and stick them onto spine A in the numbered boxes. You can attach the rungs in any order (pointing either way). Wait for the glue to set before proceeding.
5. Once the glue is dry, put glue on the other tab of each rung and stick them to the corresponding numbered position on spine B. This is the tricky part because you'll have to support both spines while the glue is drying.

