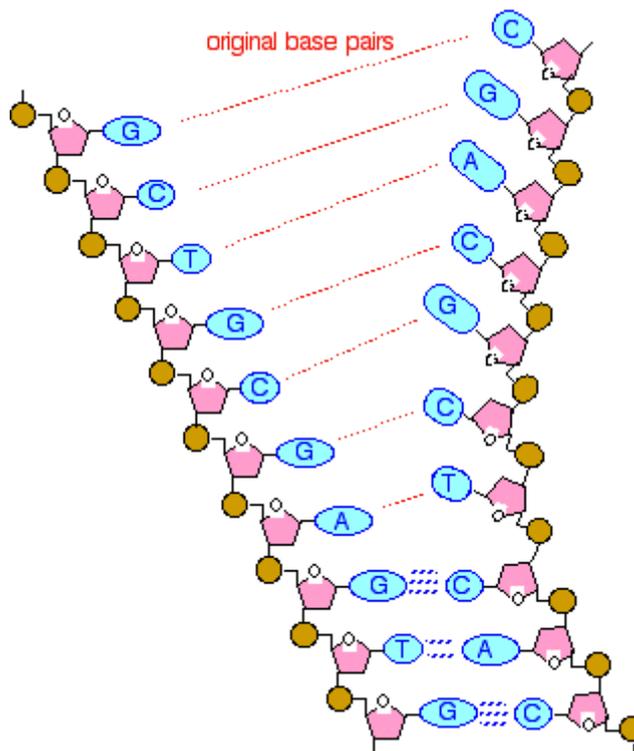


Chemguide – answers

DNA: REPLICATION

1.



Just consider the very top of the diagram, and suppose that around the DNA in the cell are a range of nucleotides. Each one will consist of one of the bases (A,T,G and C) attached to a deoxyribose molecule and a phosphate group.

The base G at the top of the left-hand bit of chain can only pair with a nucleotide containing the base C, because of the shapes of the base molecules and the way they fit together to maximise hydrogen bonding. Underneath that, the base C can only pair with a nucleotide containing the base G – and so on down the chain. Under the control of enzymes the backbone of the chain is joined up by joining the nucleotides together.

The net effect is that you will replace the original right-hand chain in the DNA by an exact copy.

Exactly the same thing happens in the right-hand chain – the original left-hand chain is replaced by an exact copy.

So when everything is complete, you end up with two DNA molecules both of which are identical with the original DNA. Each new molecule contains one chain from the original DNA and one newly-built chain. That's what *semi-conservative* means. Half of the original DNA is conserved in each of the final copies.