# PCR

In a test tube, we add the buffer, the strand of the DNA that we would like to copy, DNA polymerase, an overabundance of the four nucleotides A T C G and a quantity of the two primers that are complimentary to the two DNA strands. The primers were made in a lab and they act as an anchor for the enzyme to start the DNA replication.

The reaction begins by heating the mixture to 95ºc thereby denaturing the double stranded DNA to two single stranded molecules. After that, the mixture is cooled to 45ºc whereby the primers bind to the two single strands of DNA.

We heat the mixture to 65ºc. At this temperature, the DNA polymerase is active and will create two new strands of DNA which complement the two original strands. At the end of this cycle, we end up with two copies of the original double-stranded DNA molecule.

We repeat all these steps again: heating to 95ºc, cooling to 45ºc and then heating to 65ºc. At the end of the second cycle, there are 4 molecules of DNA.

We repeat these steps again, usually for 25-30 cycles. Each one of these cycles lasts for a few minutes. At the end of these cycles we will have a huge amplification of the original DNA molecule.