

## Handmade DNA: a tactile model to explore the basics of DNA

# Activity 2: DNA replication answer sheet

1. What is the purpose of DNA duplication?
2. What is used as a template?
3. Which strand is copied?
4. Does the process proceed in the same direction for the two strands?

While practically carrying out the duplication, it is observed that both strands can serve as a template and are copied, giving rise to two DNA molecules. The process always takes place starting from the end with the free ring; therefore, it will proceed in the opposite direction for the two strands.

5. Are the two molecules obtained similar or identical?
6. How were the old and new nucleotides distributed?

The two final molecules obtained are identical; each is made up of half of the old nucleotides and the other half of the new nucleotides added during the process. You can easily see this from the different colours of chenille wire used. DNA replication is, in fact, a **semiconservative** process.

7. Is the sequence preserved?
8. Can mistakes be made?

The DNA sequence is completely preserved, although there is a possibility that some errors may occur if correct base pairing doesn't happen.