Lost and Found in Transcription

A Digital Story by

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Characters: Cytosine, Guanine, Thymine, Adenine, Uracil, and RNAP (RNA

Polymerase)

Hello, and welcome to the wonderful world of science! Today we will learn about the process of transcription. In this story, there are several characters: RNA Polymerase (RNAP), an enzyme who loves to cause trouble, and our nucleobases, we have Cytosine, Guanine, Thymine, Adenine, and Uracil, and they all enjoy living in pairs. Cytosine and Guanine always link together. In the DNA helix, Adenine links with Thymine. However, when RNAP separates them, Thymine is replaced by Uracil.

As our story begins, Cytosine, Guanine, Thymine, and Adenine are all paired up and happily dancing along in the nucleus. These couples don't realize it, but they possess the instructions to build a valuable protein. Elsewhere in the nucleus, RNAP receives a message that the cell needs the instructions these couples possess.

RNAP approaches the helix…and tears the couples apart! To obtain the instructions these nucleobases possess, RNAP quickly finds matches for half the helix, pairing Cytosines with Guanines, Adenines to Thymines, and Uracil to Adenines. This creates a strand of messenger RNA, which will carry the instructions out of the nucleus.

After a few seconds, RNAP finishes copying the instructions, detaches the mRNA strand, and moves on. The DNA nucleobases are reunited, and happily resume dancing.