

DNA Model

Grades: 2-5

Subject: DNA
Models

NGSS: ETS1.B: Developing Possible
Solutions

LS1.A: Structure and Function

Skills: Critical thinking, building

Materials: Twizzlers, toothpicks, four colors
of mini gumdrops

BACKGROUND

DNA, or deoxyribonucleic acid, is held within the nucleus of a cell. It has the important job of telling cells how to function and what to do. DNA is also what causes every individual to be different. This is because DNA carries genes, which control the traits of an organism, such as color, behavior, and more. DNA is made up of four nucleotides, Adenine (A), Thymine (T), Cytosine (C), and Guanine (G). These four nucleotides are held together by a backbone of sugars and phosphates that give DNA its double helix structure. Adenine is always paired with Thymine, and Cytosine with Guanine.

ACTIVITY

1. Go over the background information with your students.
2. Each student should have two Twizzlers and all four colors of gumdrops. Have students sort gumdrops into piles based on color. Tell students to designate each color one of the four nucleotides. Remind them that Adenine and Thymine are always paired together and so are Cytosine and Guanine.
3. Then, tell students to push a toothpick through two gumdrops, keeping in mind that the gumdrops must stay in the correct pairs.
4. Next, have students push the two Twizzlers on either end of the toothpick. The result should look like a rung on a ladder.
5. Have students repeat steps 3–4 until they have a complete ladder. Remind them that the DNA model can have endless combinations, but the pairs must stick together.
6. Have students gently twist the top and the bottom of the model in opposite directions to form the double helix structure.



DISCUSSION

Look up Photo 51, the first photo of DNA taken by Rosalind Franklin, and show your students. Discuss with them how similar it looks to the double helix structure they made.



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