

Modeling DNA

DNA stands for deoxyribonucleic acid. It is a set of instructions that live in cells of living things and determines what that living thing is like. Explore this activity to see how DNA is built on a larger scale!



Materials:

- 6 Toothpicks
- Paper Towel
- Paper
- Pencil
- 3 Clear Gummy Bears
- 3 Red Gummy Bears
- 3 Green Gummy Bears
- 3 Yellow Gummy Bears
- 3 Green Gummy Bears
- 2 Rope-like Candies





Procedure:

1. Make sure your work area is clean and lay out the paper towel to build on.

1



2. There are 4 chemical bases that make up DNA:

- Adenine (A) → 
- Guanine (G) → 
- Cytosine (C) → 
- Thymine (T) → 

2

These will match different colored gummy bears.

3. In DNA, these chemical bases only pair up one way:

A (yellow) with T (red) and
G (clear) with C (green).

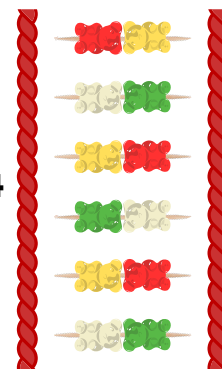
Pair the gummy bears together and place each pair on a toothpick.

3



4. Lay the rope candies in front of you vertically with space in between them, then place each pair of gummy bears like ladder rungs between the rope candies.

4

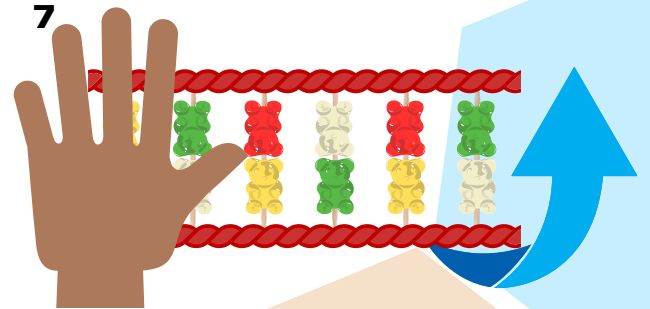
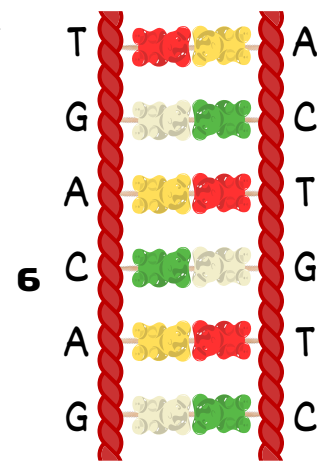


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5. Stick the ends of the toothpicks into the rope candies.

6. Once all of the toothpicks are attached to the rope candies, lay it flat on the workspace and write the letter each gummy bear represents next to the rope candies.

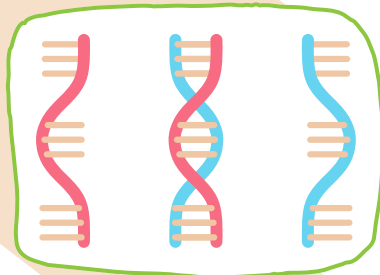
7. One last step is twisting the model so it looks more like DNA. Hold one end flat and flip over the other end.



WHAT'S HAPPENING?

The four chemical bases (A, T, C, and G) always make the same pairs - A and T, C and G. Because of this, if you hide one side of the DNA model you can always tell what is on the other side. If the pairs split up, one half of the DNA can be replicated based on the other half.

The DNA model that was made today only has 6 pairs in it, but human DNA has 3 billion pairs. The model would need to be 5 hundred million times longer to include all the pairs! DNA is tiny and needs to be viewed under a special microscope to be studied.



DID YOU KNOW?

An **geneticist** is someone who studies everything about DNA. If you liked this activity, maybe genetic science is for you!

