

CHRISTMAS SCIENCE EXPERIMENT: Sparkly, Jingly, Christmas DNA Ornaments

What you'll need to gather:

- 2 chenille sticks of a color of choice (red, green, silver, or gold)
- 2 chenille sticks of a second color of choice
- 20 mini jingle bells. 5 bells, 4 different colors for a total of 20 mini jingle bells



Directions:

1. Choose 2 chenille sticks to be the backbone of your DNA strand (we chose gold).
2. Choose 2 chenille sticks to attach your nucleotide bases (we chose silver).
3. Choose 4 colors of jingle bells (5 of each color) to pair up for your nucleotide bases (we chose red/green & silver/gold).
4. Thread a pair of bells onto the chenille stick you chose and then start creating a "ladder" by alternating jingle bell pairs and twisting the chenille stick around the outer backbone chenille sticks. You can put the bells in any order, but you cannot mix the pair colors. In our DNA ornament, red will always be paired with green and silver will always be paired with gold. *See example 1.*
5. When you are done creating your DNA "ladder," trim off any extra chenille stick.
6. To create the signature twist of DNA, find a household object to wrap your DNA strand around. *See example 2.*
7. Attach a string to hang your ornament. *See example 3.*



Example 1



Example 2



Example 3

THE SCIENCE

Deoxyribonucleic acid, DNA, is a molecule which forms the basis of all life. It provides the information necessary to take a bunch of lifeless chemicals and turn them into a living system. DNA represents the most efficient way of storing data in all of creation! And if that isn't amazing enough, it does all of this by just using a code stored in the sequence of only four bases called adenine, thymine, guanine, and cytosine. That's what your four differently colored bells represented. These four bases are the same in all life, such as plants and animals. The sequence set by God determines what makes a bird, a tree, or a human. Human DNA decides if a cell will become a heart cell, a blood cell, a muscle cell, or any of the multiple cell types in the human body! At Apologia, we think DNA is a pretty amazing molecule, and we hope that you will marvel at the beauty of it too this Christmas.