

Colorful Codons: Decoding DNA - CLASS SET

PROCEDURE

1. Each table group will be assigned one of the following DNA sequences to decode.
 - a. GCGAGATCCTTGAATAGGTTG
 - b. CCGTTAAACTTGACGTCAAGG
 - c. CGTGACTIONAACTCCAATTTG
 - d. ACAAGCGAGTGGTCTAATTTA
2. Work in groups of 2-3.
3. Copy your assigned DNA sequence onto your student sheet. WRITE ONLY 3 LETTERS IN EACH BOX
4. This is known as a CODON.
5. Decode your DNA by using the Codon Chart on your Student Sheet.
6. Start with the larger letter in the center and move to the smaller letters (inside out) on the Codon Chart.
7. Example: ACG as a codon
 - a. A is the first base, so go to the big A in the center of the wheel.
 - b. C is the second base, so from the A, go to the smaller C that touches the A next.
 - c. G is the last base, and the letter is "T".
 - d. The color paper will be pink.
8. Write the letter below the codon (set of 3 DNA bases).
9. Write the color of the paper underneath the letter.
10. Write the codon on the correct color of paper and tape or glue the paper into a loop.
11. Repeat steps 4-9 for the next codon, but now loop the second strip of colored paper in the first.
12. Continue with the next codon until you decode the entire sequence (word).
13. You should now have a chain of colored paper with 3 DNA bases written on each.
14. Write your name(s) on the last piece of paper and put it in the correct bin. You have made a "protein"!

ANALYSIS QUESTIONS (Write in notebook)

1. What is a codon?
2. Change the 3rd letter of your original sequence to a different letter. What color paper is the new codon?
3. Write a 3 word sentence as DNA code.
 - a. Don't forget to code for the space between words!
 - b. Trade with a friend and decode their sentence.
4. Remove the first letter of your original DNA sequence.
 - a. Repeat the decoding process by identifying the new codons.
 - b. Write out the new word.
 - c. How does your new word compare to your old word?

