

Directions: Analyze Figure 1 to complete the questions.

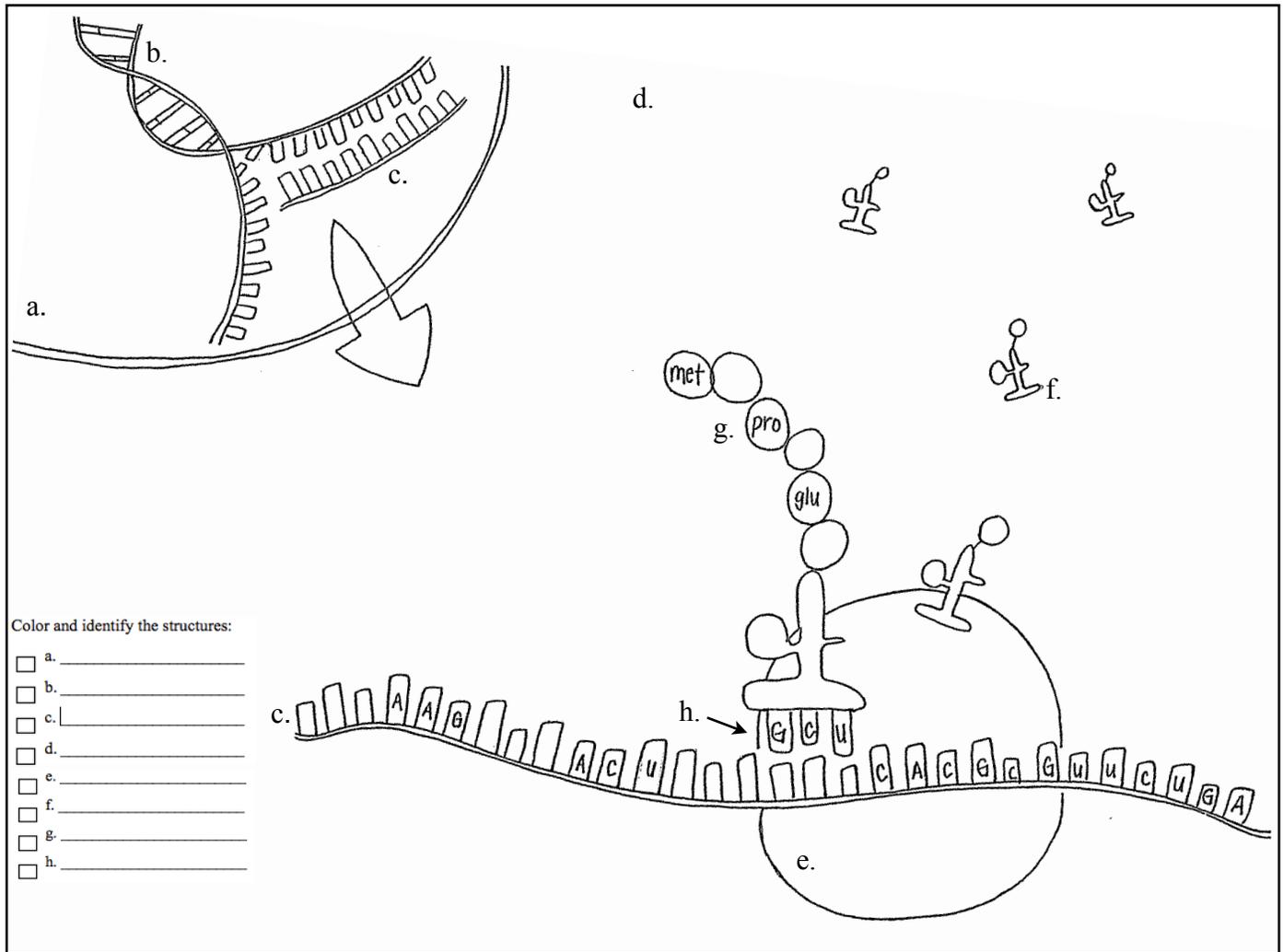


Figure 1

1. The structure labeled a. is the location in which DNA is stored in a cell. What is the name of this structure? Name and describe the process that is occurring inside of this structure.
2. When the structure labeled c. leaves a., it enters d. and attaches to e. At this point, c. is divided into groups of three nucleotides and a new process begins. What are these groups of three nucleotides called? Name and describe the process that is occurring.
3. The structure labeled f. is called transfer RNA, or tRNA. These structures carry anti-codons, labeled h. Based on the Figure, what does the anti codon do?

Name: _____ Date: _____ Period: _____

4. The structure labeled g. is a chain of amino acids that will eventually make a protein. How many amino acids are currently on the chain?

5. Complete the mRNA sequence and amino acid chain.

a. What is the entire mRNA sequence? _____

b. What is the entire amino acid chain? _____

c. How many nucleotides are in the mRNA strand? _____

d. How many codons are in the mRNA strand? _____

6. Codon 2 is A A G. What amino acid does this code for?

a. A substitution mutation changes the codon to A A A. What amino acid does this code for?

b. A substitution mutation changes the codon to A A C. What amino acid does this code for?

c. Explain why some mutations do not change the amino acid, but other mutations do.

7. Codon 9 is U U C. If a deletion mutation occurred in which the second U was removed, what will happen to the remaining mRNA sequence.

Check Your Understanding

Directions: Complete these questions based on your knowledge of transcription and translation.

1. The process by which the genetic code of DNA is copied into a strand of RNA is called-

a. translation b. transcription c. transformation d. replication

2. The process of making proteins on the ribosome based on instructions from mRNA is called-

a. translation b. transcription c. transformation d. replication

3. Which of the following describes mRNA?

- a. RNA is double stranded and contains the base thymine.
- b. RNA is single stranded and contains the base uracil.
- c. RNA is longer than DNA and uses five bases to encode information.
- d. RNA is made in the nucleus of a cell and stays there to carry out its functions.

4. Which of the following statements about the genetic code is true?

- a. A codon can specify for more than one amino acid.
- b. Every codon specifies for a different amino acid.
- c. Some codons specify for the same amino acid.
- d. Some codons have no function at all.