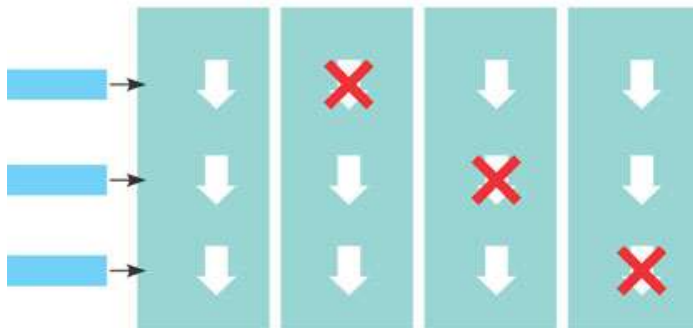
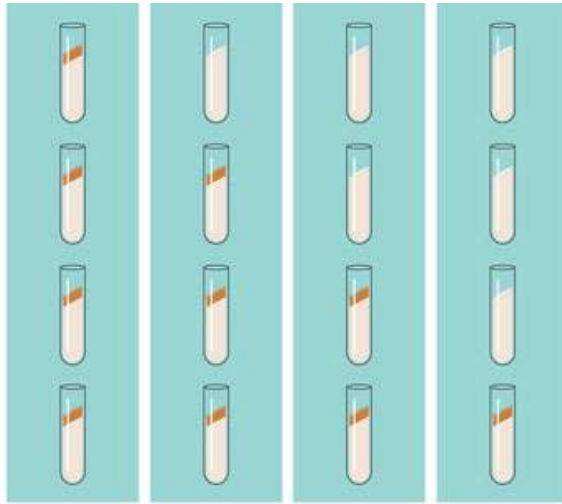


**AP Biology**  
**Chapter 17 Guided Reading Assignment**  
Modified from S. Sharp's Modification of L. Miriello

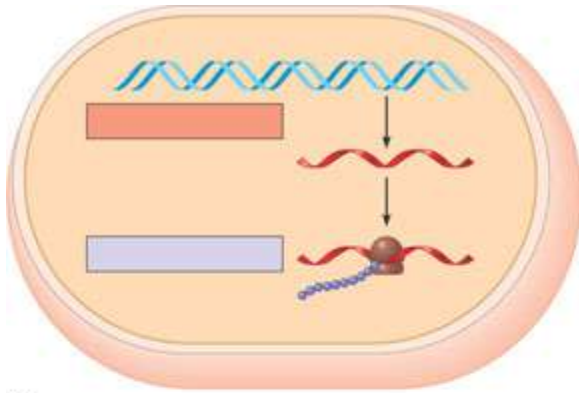
Name \_\_\_\_\_

1. What did Garrod mean by “inborn errors of metabolism?”
2. Describe the Beadle and Tatum experiment with mold in detail – use the diagram below to help. The logic behind both the experiment and the results are critical.

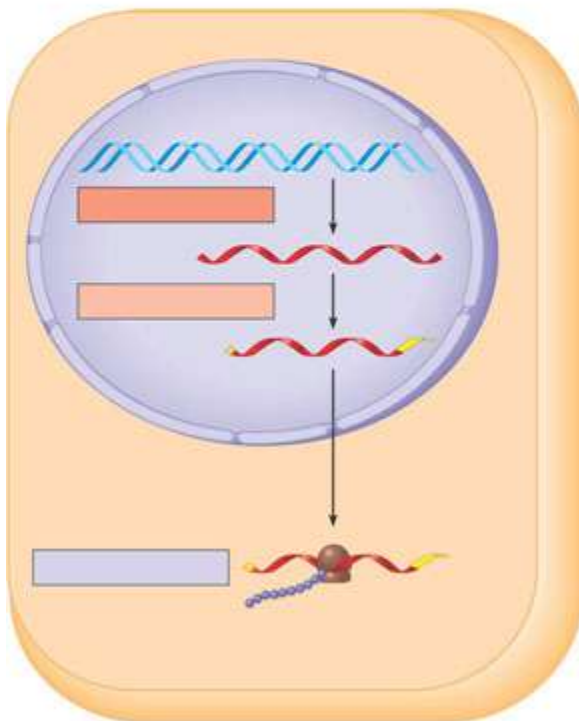


3. What was Beadle and Tatum’s final hypothesis?

4. Use the diagram below to note the flow of genetic information in a eukaryotic cell – next to each label in the square – write the definition of the term.



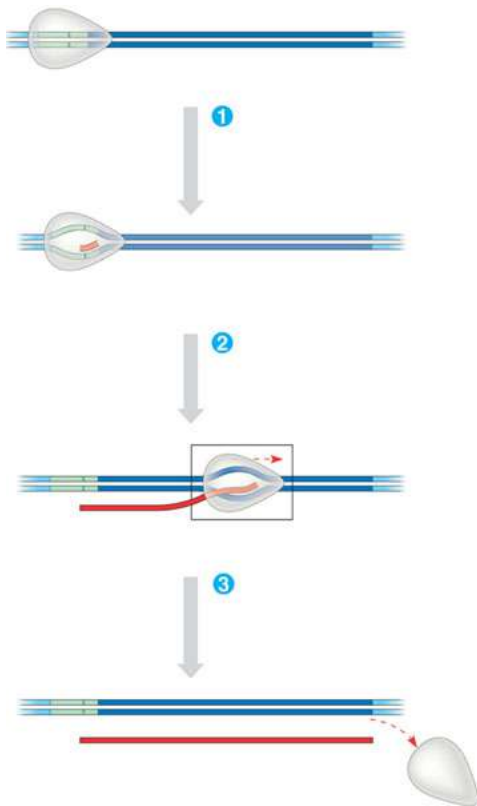
(a)



(b)

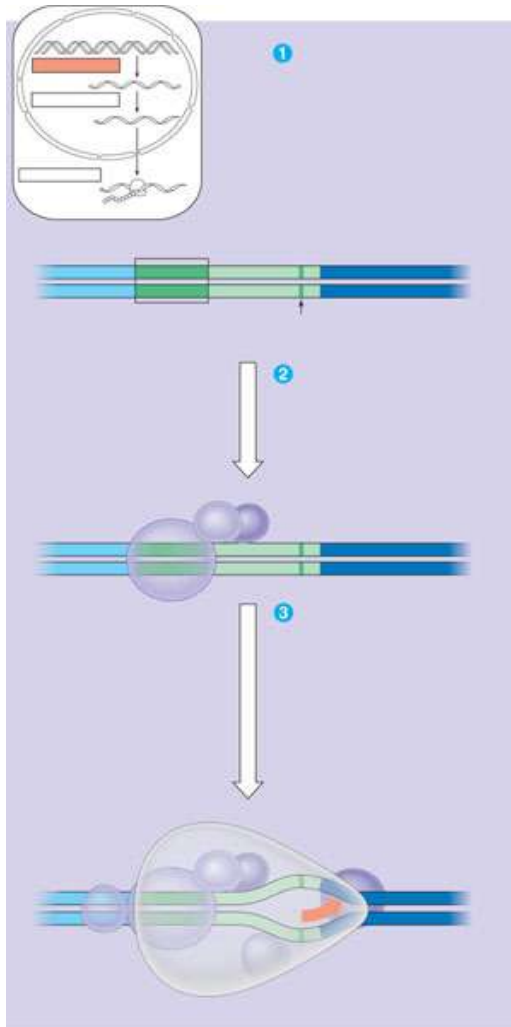
5. Why does the “code” have to be in triplets and not singles or doubles?
6. What is the template strand?
7. Compare and contrast the codon and anticodon?

8. How did Nirenberg “figure out” which amino acids went with which codes?
9. What is the reading frame?
10. What conclusions can be drawn from the similarities of the genetic code among living organisms?
11. Use the diagram below to understand transcription: Define all terms.



12. Describe the prokaryotic promoter and terminator.

13. Use the diagram below to demonstrate initiation of transcription at a eukaryotic promoter. Write definition of all terms in diagram.



14. Contrast termination of transcription for prokaryotic and eukaryotic organisms.

15. Why is RNA processing necessary?

16. What does adding a 5' cap and poly A tail mean and why is it important?

17. Define the following terms:

- a. RNA splicing
- b. Introns
- c. Exons
- d. Spliceosome
- e. snRNP's
- f. ribozymes
- g. UTR
- h. Alternative RNA splicing
- i. domains

18. Describe the structure and function of transfer RNA.

19. Why is the enzyme aminoacyl-tRNA synthetase important to translation and protein synthesis?

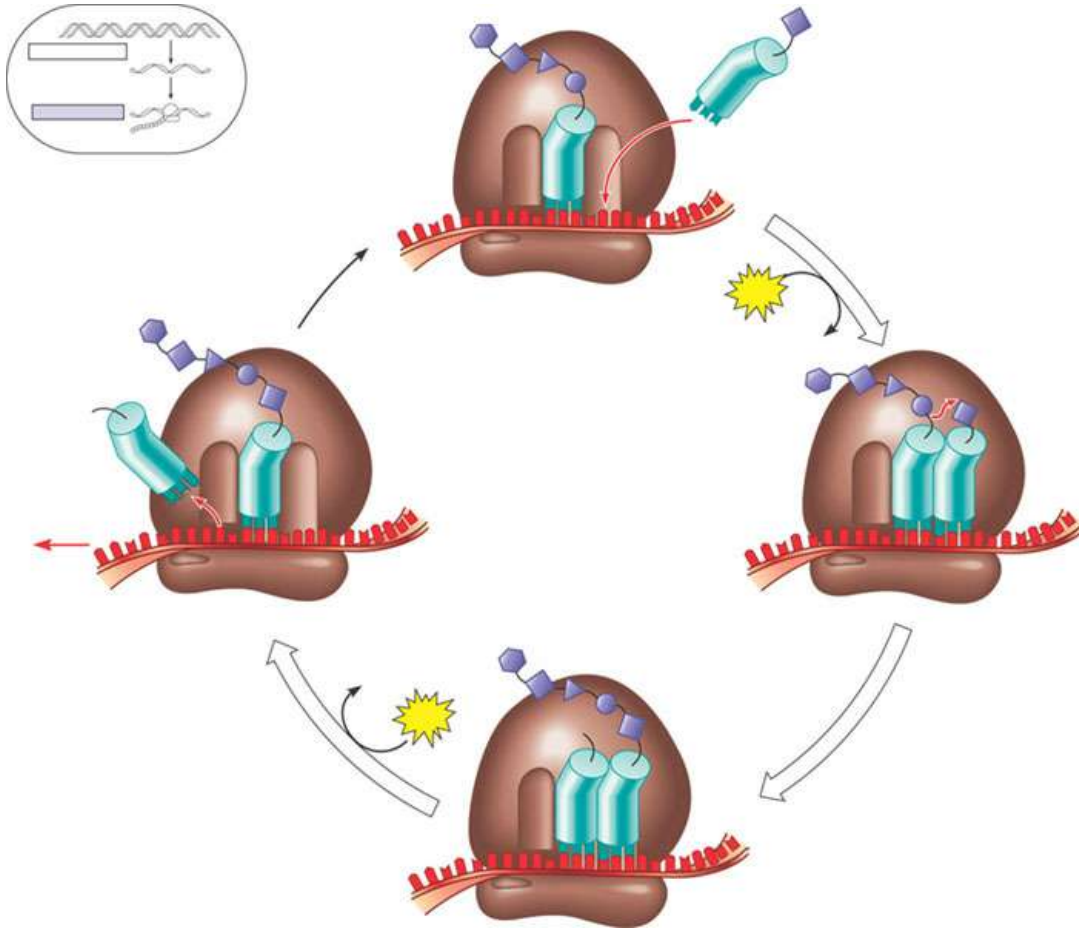
20. What is "wobble"?

21. Describe the structure and function on ribosomal RNA – use the diagram below.



22. Detail the steps of initiation of translation.

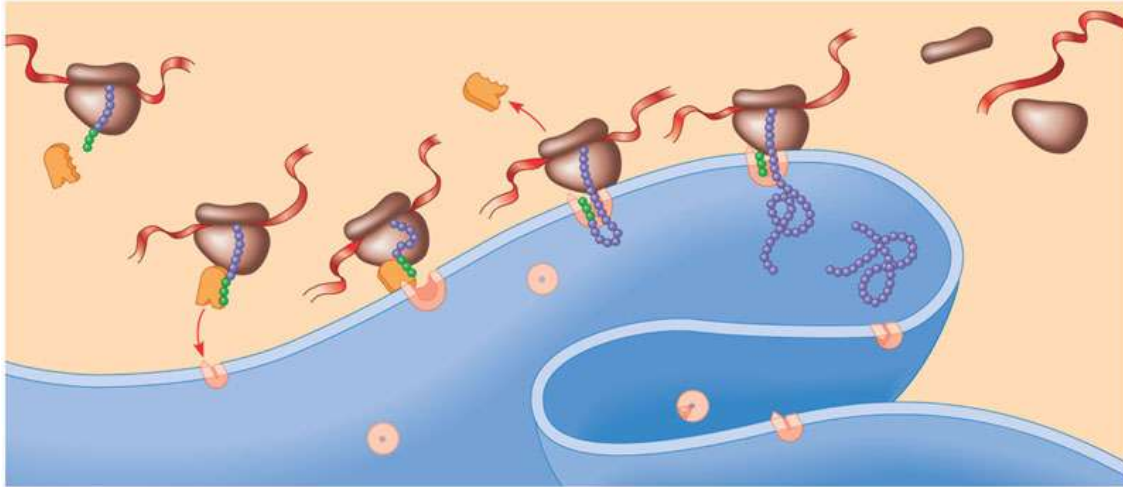
23. Use the diagram below to detail elongation cycle of translation. Define terms.



24. What are polyribosomes?

25. What is an example of a post translational modification of a protein?

26. Use the diagram below to highlight the signal mechanism for targeting proteins to the ER.



27. Define the following terms:

- a. Mutations
- b. Point mutations
- c. Base pair substitution
- d. Missense
- e. Nonsense
- f. Insertions
- g. Deletions
- h. Frameshift mutation
- i. Mutagen

28. How has a gene been “redefined” and why?