



Name \_\_\_\_\_

## Genetics Science Learning Center -- Internet Lesson

Objective: Students will browse the Genetics Science Learning Center Website to learn about basic genetics, including the structure of DNA, transcription and translation. Answer the questions as you browse through the site topics.

Site Location: <http://gslc.genetics.utah.edu/>

1. What are the titles of the two feature articles on the main page?

Click on the link that says "The Basics and Beyond" → "Tour the Basics".

### What is DNA?

2. What does DNA stand for? \_\_\_\_\_
3. Why is DNA called a blueprint? \_\_\_\_\_
4. The "twisted ladder" shape of the DNA molecule is called a \_\_\_\_\_
5. Name the four bases found in a DNA molecule: \_\_\_\_\_
6. A DNA strand is made of \_\_\_\_\_ which make up \_\_\_\_\_ which make up sentences.
7. These "sentences" are called \_\_\_\_\_

### What is a Gene? *Hint - Look at the navigation bar at the top, you'll need to click on "What is a Gene" to continue.*

8. What is a gene? \_\_\_\_\_
9. Blood cells use a protein called \_\_\_\_\_ to capture and carry oxygen.
10. When a gene is changed, it is said to be \_\_\_\_\_
11. A mutation in the hemoglobin gene causes what disorder: \_\_\_\_\_

### What is a Chromosome?

12. If you stretched out all the DNA from a single cell, how long would it be?? \_\_\_\_\_
13. How many chromosomes are in a human cell? \_\_\_\_\_ a mosquito? \_\_\_\_\_ a carp? \_\_\_\_\_

### What is a Protein?

14. How is a protein like a car engine? \_\_\_\_\_
15. Receptor proteins are responsible for picking up \_\_\_\_\_
16. Each gene in DNA encodes information on how to make a \_\_\_\_\_
17. Once in the cytoplasm, the \_\_\_\_\_ reads the message.

## What is Heredity?

18. The passing of traits from parents to child is the basis of \_\_\_\_\_
19. Every child receives \_\_\_\_\_ of its chromosomes from his mother and half from his \_\_\_\_\_
20. When a sperm and egg join, they create a single cell called a \_\_\_\_\_
21. Each child inherits a \_\_\_\_\_ set of chromosomes.

## "What is a Trait?"

22. Give an example of a physical trait: \_\_\_\_\_
23. A dog fetching a bone is an example of what kind of trait? \_\_\_\_\_
24. Scientists describe the set of information for each form of trait as an \_\_\_\_\_

## "Build a DNA Molecule"

*return to "Basics and Beyond" Click on "Build a DNA Molecule"*

25. Build a DNA molecule. What is the base pair rule? \_\_\_\_\_
26. Draw the DNA molecule you built. Show how the bases are lined up and how they are attached.

## "Transcribe and Translate a Gene" *(return to "Basics and Beyond")*

27. Define transcription: \_\_\_\_\_
  28. Define translation: \_\_\_\_\_
  29. Follow the instructions for the activity. List the amino acid sequence you created.
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## "What Makes a Firefly Glow" *(return to "Basics and Beyond")*

30. Fireflies glow to attract a \_\_\_\_\_ and to avoid \_\_\_\_\_
31. RNA polymerase binds to the \_\_\_\_\_ gene.
32. When transcription is complete, the LUC mRNA moves to the \_\_\_\_\_
33. The ribosome interprets the mRNA to produce a string of \_\_\_\_\_
34. In order to become a functioning luciferase enzyme, the string must \_\_\_\_\_
35. The enzymes bind to \_\_\_\_\_ to create light.

