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://learn.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.

_____

"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.