Name_____ Date_____ Period_____

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/content/begin/tour/

Click on the link that says **"Tour the Basics"**.

What is DNA?

1. What does DNA stand for? _____

2. Why is DNA called a blueprint? _____

3. The "twisted ladder" shape of the DNA molecule is called a _____.

4. Name the four bases found in a DNA molecule: _____

5. A DNA strand is made of _____which make up _____which make up sentences.

6. 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.*

7. What is a gene? _____

8. Blood cells use a protein called _____ to capture and carry oxygen.

9. When a gene is changed, it is said to be _____.

10. A mutation in the hemoglobin gene causes what disorder: _____

What is a Chromosome?

11. If you stretched out all the DNA from a single cell, how long would it be? _____

12. How many chromosomes are in a human cell? _____ mosquito? _____ carp? _____

What is a Protein?

13. How is a protein like a car engine? _____

14. Receptor proteins are responsible for picking up _____.

15. Each gene in DNA encodes information on how to make a _____.

16. Once in the cytoplasm, the _____ reads the message.

What is Heredity?

17. The passing of traits from parents to child is the basis of _____.

18. Every child receives _____ of its chromosomes from his mother and half from his _____.

19. When a sperm and egg join, they create a single cell called a _____.

20. Each child inherits a _____ set of chromosomes.

What is a Trait?

21. Give an example of a physical trait: _____

22. A dog fetching a bone is an example of what kind of trait? _____

23. Scientists describe the set of genetic information for each form of trait as an _____.

Build a DNA Molecule   GO BACK TO *"HOME"* and click on the link that says *"DNA to Protein"*. Then scroll down and click on *"Build a DNA Molecule"* (left side). Go through **10** base pairs...

24. Build a DNA molecule. What is the base pair rule? _____

25. 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 *"DNA to Protein"*). Click on *"Transcribe and Translate a Gene"* (middle).

26. Define transcription: _____

27. Define translation: _____

28. Follow the instructions for the activity. List the amino acid sequence you created.

_____

What Makes a Firefly Glow (Return to *"DNA to Protein"*). Click on *"What Makes a Firefly Glow?"* (middle).

29. Fireflies glow to attract a _____ and to avoid _____.

30. RNA polymerase binds to the _____ gene.

31. When transcription is complete, the LUC mRNA moves to the _____.

32. The ribosome interprets the mRNA to produce a string of _____.

33. In order to become a functioning luciferase enzyme, the string must _____.

34. The enzymes bind to _____to create light.