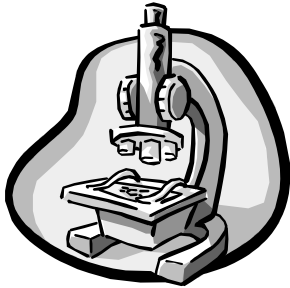


Science 10-Biology

Activity 8

Worksheet on the Nucleus and DNA -2007



10

Name _____

Due Date _____

Show Me Hand In

Correct and Hand In Again By _____

Use pages 344-346 of your Science Probe text to help you answer questions 1-15.

1. The “controller” of the cell is the _____.
2. Catalysts to speed up chemical reactions in the cells are called _____.
3. Does one enzyme speed up a number of different reactions or just one type? _____.
4. The nucleus controls the cells activities by controlling the production of _____.
5. The function of the *nuclear membrane* is to _____
_____.
6. Molecules of _____ within the nucleus control the production of enzymes.
7. Each *chromosome* in the nucleus is made up of _____ and a variety of _____.
8. Human cells normally contain _____ chromosomes.
9. A strand of DNA is a huge chain made up of smaller molecules called _____.
10. Each nucleotide in a DNA molecule has a *base* as part of it. The four types of bases found on these nucleotides are shown by the letters ____, ____, ____, and ____.
11. What is meant by a *gene*?

12. Look at Figure 15.20 on the top of page 346. On the left of this diagram, DNA is shown as a *ladder*. The right and the left side of the ladder consist of long chains made up of “P”s and “S”s. Each “P” stands for a _____ and each “S” stands for a _____. The *bases* are symbolized by the letters __, __, __ and __.
13. The actual DNA structure is not really like a ladder, but like two coils wrapped around each other. This structure is called a *double* _____. This structure was first discovered by two scientists _____ and _____.
14. The number and order (sequence) of bases on each *gene* determine the exact structure of the _____ “coded” by that gene. Each chromosome contains thousands of genes, each one controlling the structure of one protein or enzyme made by the cell.
15. What do you think could happen if a gene coding for a specific protein has a “mistake” or “incorrect arrangement of bases” in it? _____

Next, go to the following site and use the information to answer the following questions:

<http://www.ornl.gov/hgmis/publicat/primer2001/7.html>

16. Give 5 ways that genome research can be applied in *molecular medicine*.
- 1.
 - 2.
 - 3.
 - 4.
 - 5.
17. Give 5 ways that knowing the genomes of *microbes* (microbial genome research) can help us.
- 1.
 - 2.
 - 3.
 - 4.
 - 5.

18. Give three ways in which DNA information may be used in *fighting crime*.
- 1.
 - 2.
 - 3.
19. Give 5 ways in which genome research helps us or can help us in *agriculture*.
- 1.
 - 2.
 - 3.
 - 4.
 - 5.

Now, go to the site: <http://www.ornl.gov/hgmis/publicat/primer2001/8.html>

20. Outline some of the concerns people have about genome research.
21. What is your opinion about gene research? Should it be continued. What should and shouldn't be done with it?

Now go to the site:

<http://learn.genetics.utah.edu/units/disorders/sloozeworm/>

22. A mutation is a permanent change in the _____ sequence of a _____.
- A mutation could cause some of the instructions to the cell to be _____
23. What are the two ways in which DNA can become mutated?
1. _____
 2. _____

Now go to the site:

http://www.kidshealth.org/teen/your_body/health_basics/genes_genetic_disorders.html Scroll down until you get to “What are Genetic Disorders”

24. About how many diseases are presently thought to be hereditary? _____.

Give four examples of genetic disorders:

1.

2.

3.

4.

25. What is the practice of “Gene Therapy” trying to achieve?

26. In what way will knowing a person’s genetic information help with lessening the chances of getting these genetically related diseases? (Use point form.)