

Name: _____

Date:

Cell, DNA and Genetic Material: Practice Stencil

1. What is the smallest unit of life that makes up all living organisms? **Cell**

2. Define the following terms:
 - a) Cytoplasm: **fluid in cells which allows cells activities to occur**

 - b) Cellular membrane: **Semi-permeable barrier, absorbs nutrients and rids waste (allows exchange between cell and environment)**

 - c) Nucleus: **Contains/protects genetic information**

 - d) DNA: **controls cell activities, genes, heredity traits**

 - e) Chromosome: **contains genes, dna**

 - f) Gene: **segment of dna that contains genetic information for a particular trait.**

 - g) Nitrogen Base: **A-T C-G nucleotides**

 - h) Karyotype: **chart of chromosomes by pair and number**

 - i) Cell Division: **process essential to production of new cells, growth, tissue repair, sexual reproduction**

3. True or false?

a) Within each pair of chromosomes, one comes from the mother, the other from the father. T

b) The egg is a diploid cell. F

4. When a new disease appears, genetic diversity becomes even more important. Why? Explain.

Adaptation, without genetic diversity = extinction

5. a) Describe the structure of the DNA molecule. **Double helix**

b) In what part of the cell is DNA found? **nucleus**

6. Which Nitrogen bases make up DNA and the genetic code? How are they paired up?

Adenine, thymine, guanine, cytosine

A-T

C_G

7. Diploid cells contains two sets of chromosomes, one set donated from each parent.

a) Describe which cells in the human body are diploid cell. Give an example:

Characteristic cells for growth and repair (skin cells)

b) How is a diploid cell represented:

2n

8. A) What type of human cells are haploid? Why?

Sex cells (gametes) sperm and ovum– they need to have half the genetic info from each parent so when combined they each have 23 pairs of chromosomes

B) How are they represented?

n

9. What is the main difference between the 23 pairs of chromosomes in a female and male? **Determines gender of the fetus**

XX = female XY = male

10.What are the two functions of mitosis? Explain each one.

Growth and Repair

Ex: damaged cells need to be repaired so they divide to produce new cells (like skin after a cut)

11.Mitosis does not occur in all cells. Give examples of two types of cells where this process does not occur?

Sperm and egg

12.Certain cells on the human body are replaced every two weeks, whereas other cells, like white blood cells, have a lifetime of 4 months. Why is the mitotic activity of these cells so different?

Depends on use of cells, some cells need to be replaced more often because they are continually exposed or used,

13. In what phase of mitosis does the mother cell copy the DNA in its nucleus?

DNA Replication (before cell divides to have exact replica of dna)

14.What is the function of meiosis?

To produce sex cells

15.What is the name given to the male gametes (sex cells)? **Sperm**

16.What is the name given to the female gametes (sex cells)? **ovum**