DNA REPLICATION

22. The pairing of bases allows the cell to _____, or make copies of DNA.

23. In a DNA molecule, pairs of bases are _____ to each other, since each base always bonds with only one other base.

24. In a DNA molecule, what base sequence is complementary to the sequence CGAC?

_____

25. In what direction does a DNA molecule split during replication?

_____

26. As a DNA molecule splits, what is added to the exposed bases on the original molecule?

_____

27. What happens to DNA every time a cell divides?

_____

28. In the cell, what does the job of unwinding, copying, and rewinding the DNA?

_____

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading B

Section: How DNA Works (pp. 212–217)

1. How much DNA does a single cell in your body hold?

_____

UNRAVELING DNA

2. What makes up a chromosome?

_____

3. What is chromatin?

_____

4. What happens to DNA to make it fit inside a cell?

_____

5. What forms the code that carries information for DNA?

_____

6. A string of nucleotides that give the cell information about a certain trait is known as a(n) _____.

7. Describe the genetic material contained in each of the 46 chromosomes of a human cell just before division.

_____

_____

8. Describe the chromatids that make up a chromosome when a cell is ready to divide.

_____

_____

GENES AND PROTEINS

_____ **9.** How are the codes for specific amino acids formed?

- **a.** with groups of three bases
- **b.** with groups of four bases
- **c.** with a pair of bases
- **d.** with groups of proteins

Directed Reading B *continued*

_____ **10.** A long string of amino acids forms a
- **a.** nucleotide.
- **b.** cell.
- **c.** trait.
- **d.** protein.

_____ **11.** A set of instructions for making a particular protein is a(n)
- **a.** nucleotide.
- **b.** amino acid.
- **c.** gene.
- **d.** chromosome.

_____ **12.** The chemical triggers and messengers for many processes within cells are
- **a.** mutagens.
- **b.** chromatids.
- **c.** ribosomes.
- **d.** proteins.

_____ **13.** How many genes that code for proteins does a single organism typically have?
- **a.** hundreds
- **b.** thousands
- **c.** hundreds of thousands
- **d.** millions

_____ **14.** A molecule present in all living cells that plays a role in protein production is
- **a.** RBA.
- **b.** RUA.
- **c.** RCA.
- **d.** RNA.

_____ **15.** The base that replaces thymine in RNA is called
- **a.** adenine.
- **b.** guanine.
- **c.** uracil.
- **d.** cytosine.

16. What two forms of RNA work with ribosomes to make proteins?

_____

_____

Match the correct description with the correct term. Write the letter in the space provided.

_____ **17.** a mirrorlike copy of one side of the segment of DNA containing a gene

_____ **18.** the "factory" in the cytoplasm where a new protein molecule is made

_____ **19.** molecules that pick up specific amino acids from the cytoplasm, whose bases match up with bases on messenger RNA

_____ **20.** molecule formed when amino acids released by transfer RNA link then fold up

a. ribosome
b. messenger RNA
c. protein
d. transfer RNA

CHANGES IN GENES

_____ **21.** A change in the nucleotide-base sequence of a gene or DNA molecule is called a(n)
a. mutagen.
b. mutation.
c. antigen.
d. chromatid.

_____ **22.** Random errors when DNA is copied are called
a. mutagens.
b. mutations.
c. antigens.
d. chromatids.

_____ **23.** A physical or chemical agent that can cause a mutation in DNA is called a(n)
a. mutagen.
b. protein.
c. antigen.
d. chromatid.

24. What is one example of a mutation that causes an improved trait?

_____

_____

25. Why do some mutations cause no changes to a trait?

_____

_____