

## Skills Worksheet

**Vocabulary and Section Summary B****Meiosis****VOCABULARY**

After you finish reading the section, try this puzzle! Use the clues below to unscramble the letters. Then, write the word or phrase in the space provided.

1. a cell that contains two haploid sets of chromosomes: IOPDDLI

diploid

2. a process in cell division during which the number of chromosomes decreases to half the original number: OIESMSI

meiosis

3. male sex cells: PRSEM

sperm

4. have the same sequence of genes and the same structure: GOOUSHMLOO  
MSOOSHCORME

homologous chromosomes

5. a cell, nucleus, or organism that has only one set of unpaired chromosomes: PLADOIH

haploid

6. female sex cell: GEG

egg

**SECTION SUMMARY**

Read the following section summary

- Homologous pairs of chromosomes contain the same genes. The alleles for each gene may be the same or they may be different.
- Diploid cells have homologous pairs of chromosomes. Haploid cells do not.
- The process of meiosis produces haploid sex cells.
- During sexual reproduction, haploid sex cells combine to form a new diploid organism.
- Meiosis explains how organisms inherit one-half of their genetic information from each parent.

Skills Worksheet

# Directed Reading B

## Section: What Does DNA Look Like? (pp. 208–211)

- genes** 1. Inherited characteristics are determined by
- a. genes.
  - b. traits.
  - c. molecules.
  - d. environment.

- chromosomes** 2. Structures made of protein and DNA and found in the nucleus of cells are called
- a. inherited characteristics.
  - b. phosphates.
  - c. nucleotides.
  - d. chromosomes.

- DNA** 3. What is another way to say deoxyribonucleic acid?
- a. DRA
  - b. DBA
  - c. DXA
  - d. DNA

4. What is *DNA*?

DNA is the genetic material for living things. It stands for Deoxyribonucleic acid, is a very long double helix shaped molecule that holds the code or blueprints for making all of our proteins.

### THE PIECES OF THE PUZZLE

- nucleotides** 5. The subunits that make up DNA are called
- a. genes.
  - b. nucleotides.
  - c. chromosomes.
  - d. cells.

6. What two things must the material that makes up genes be able to do?

It must hold and protect the information needed to build and maintain or cells.

**Directed Reading B** *continued*

**7.** Why must genes be copied each time a cell divides?

Each new cell must receive a complete set of the DNA blueprints.

**8.** What allows the genetic material for genes to give instructions and be copied before a cell divides?

The shape of the double helix is like a twisted ladder that can be unzipped and each strand can be read and copied.

**9.** What does a nucleotide in a nucleic acid chain consist of?

1. a phosphate group
2. a deoxyribose sugar unit
3. a nitrogenous base (of an acid) that can be either A, C, G, or T

**10.** What are the four bases of a nucleotide in DNA?

- A = adenine
- C = cytosine
- G = guanine
- T = thymine

**11.** What do the four letters scientists often use to refer to the bases of nucleotides stand for?

They stand for molecules that connect together to form DNA and their arrangement represents the codes for building our proteins

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

Chargaff

**12.** found that adenine is always equal to thymine, and guanine is always equal to cytosine in DNA

**a.** Rosalind Franklin

**b.** Watson and Crick

**c.** Erwin Chargaff

Rosalind Franklin

**13.** used X rays to make images of the DNA molecule, suggesting that DNA has a spiral shape

Watson and Crick

**14.** built a model of DNA that helped explain how DNA is copied and functions

**Directed Reading B** *continued*

---

**DNA'S DOUBLE STRUCTURE**

- double helix** 15. The twisted shape of DNA is called a
- a. double ladder.
  - b. double helix.
  - c. nucleotide.
  - d. base pair.

- phosphate parts** 16. The two sides of the double helix DNA ladder are made of alternating sugar parts and
- a. cytosine parts.
  - b. base parts.
  - c. thymine parts.
  - d. phosphate parts.

- bases** 17. The rungs of the double helix DNA ladder are made of a pair of
- a. sugars.
  - b. phosphates.
  - c. bases.
  - d. acids.

- thymine** 18. When the base on one side of a DNA ladder rung is adenine, the other side of the rung is always
- a. thymine.
  - b. guanine.
  - c. cytosine.
  - d. phosphate.

- cytosine** 19. When the base on one side of a DNA ladder rung is guanine, the other side of the rung is always
- a. thymine.
  - b. guanine.
  - c. cytosine.
  - d. phosphate.

20. When Chargaff separated the parts of a sample of DNA, what did he find out about the matching bases?

The bases A and T were in the same proportions as each other. and the bases C and G were in the same proportions.

---

21. What did Watson and Crick learn about the fit of the correct pairs of bases within the width of the DNA ladder?

The found that A pairs with T , and C pairs with G. This explained why they were proportionate to each other.

---