

9. They contain only half the chromosomes.
10. Two sex cells join to form a zygote.

**Section 3 (page 27)**

1. T:A; G:C; A:T; T:A; C:G
2. A: uracil; C: guanine; T: adenine; G: cytosine; A: uracil.
3. A gene directs the making of specific proteins.
4. deoxyribose (sugar) and phosphate
5. It has uracil instead of thymine, and it is single-stranded.
6. It carries the code for proteins from the nucleus to the ribosomes.
7. Messenger RNA, or mRNA, carries the code from the nucleus to the cytoplasm. There ribosomal RNA (rRNA) attaches to the amino acids. Transfer RNA, or tRNA, picks up amino acids in the cytoplasm and brings them to these ribosomes.
8. X rays, sunlight, or toxic chemicals can result in errors in copying a gene or in a cell receiving an extra chromosome.

**Enrichment (page 28)**

**Section 1 (page 28)**

1. No. The Eukaryotic cell is found in the single-celled foram.
2. amoebas
3. It has a shell
4. about the size of a dime
5. by mitosis
6. No. Since the foram reproduces asexually, it will be identical to the parent.

**Section 2 (page 29)**

Each sperm or egg that is produced during meiosis is unique because the genetic information has been traded between chromosomes early in meiosis.

**Section 3 (page 30)**

1. Radiation has very high-energy waves and can break up DNA.
2. The ultra-violet radiation breaks up the skin cells' DNA. The DNA molecules don't repair properly, and the cell can reproduce with a mutation.
3. The first way radon destroys genetic information is by breaking up the DNA with high energy waves. The second way is by the emission of large alpha cells that physically tear up the cell.
4. X rays can damage a growing baby. Exposure to high-energy waves of growing cells in the baby's body may cause damage and health problems.

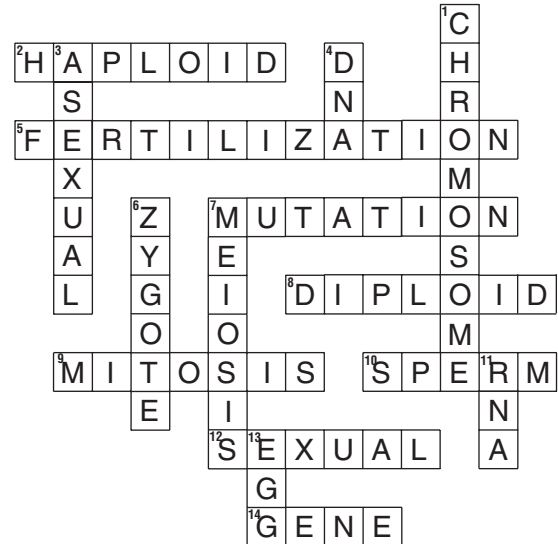
**Note-Taking Worksheet (page 31)**

Refer to Teacher Outline, student answers are underlined.

**Assessment**

**Chapter Review (page 35)**

**Part A. Vocabulary Review (page 35)**



**Across**

2. (8/2)
5. (6/2)
7. (10/3)
8. (6/2)
9. (5/2)
10. (7/2)
12. (6/2)
14. (9/3)

**Down**

1. (3/1)
3. (4/1)
4. (10/3)
6. (8/2)
7. (5/2)
11. (11/3)
13. (7/2)

**Part B. Concept Review (page 36)**

1. prophase (2/1)
2. metaphase (2/1)
3. anaphase (2/1)
4. telophase (2/1)
5. budding, fission, regeneration (4/1)
6. a. anaphase II  
b. metaphase I  
c. telophase I  
d. prophase I  
e. telophase II (5/2)
7. a. Body cells divide by mitosis, and sex cells divide by meiosis. (2/1, 5/2)  
b. Mitosis has four steps in cell division, and meiosis has eight steps. (2/1, 5/2)  
c. The end product of mitosis is two new nuclei that have the same number of chromosomes as the original nucleus. The end product of meiosis is four new cells, containing half as many chromosomes as the parent cell. (3/1, 6/2)
8. a. adenine  
b. thymine  
c. phosphate