

**SECTION 16-1 REVIEW****GENETIC EQUILIBRIUM****VOCABULARY REVIEW** Define the following terms.

1. population genetics \_\_\_\_\_  
\_\_\_\_\_
2. gene pool \_\_\_\_\_  
\_\_\_\_\_
3. allele frequency \_\_\_\_\_  
\_\_\_\_\_
4. phenotype frequency \_\_\_\_\_  
\_\_\_\_\_
5. Hardy-Weinberg genetic equilibrium \_\_\_\_\_  
\_\_\_\_\_

**MULTIPLE CHOICE** Write the correct letter in the blank.

- \_\_\_\_\_ 1. The smallest unit in which evolution occurs is
- |                            |               |
|----------------------------|---------------|
| a. an individual organism. | c. a species. |
| b. a population.           | d. a kingdom. |
- \_\_\_\_\_ 2. Length, weight, and many other quantitative traits in a population tend to show variation that, when plotted on a graph, looks like
- |                       |                         |
|-----------------------|-------------------------|
| a. a population wave. | c. a bell curve.        |
| b. a gene pool.       | d. an equilibrium plot. |
- \_\_\_\_\_ 3. If a population of four o'clock flowers consists of five *RR* plants (red flowers), two *Rr* plants (pink flowers), and one *rr* plant (white flowers), the phenotype frequency of plants with pink flowers is
- |           |          |         |          |
|-----------|----------|---------|----------|
| a. 0.125. | b. 0.25. | c. 0.5. | d. 0.75. |
|-----------|----------|---------|----------|
- \_\_\_\_\_ 4. In the population described in question 3, the frequency of the *R* allele is
- |           |          |         |          |
|-----------|----------|---------|----------|
| a. 0.125. | b. 0.25. | c. 0.5. | d. 0.75. |
|-----------|----------|---------|----------|
- \_\_\_\_\_ 5. For a population to be in genetic equilibrium,
- |  |                                  |
|--|----------------------------------|
| a. individuals must not enter or leave the population. | c. the population must be small. |
| b. the population must be evolving.                    | d. selection must occur.         |

**SHORT ANSWER** Answer the questions in the space provided.

1. What types of individuals in a population are represented by the two ends of a bell curve?

\_\_\_\_\_

\_\_\_\_\_

2. What are the three main ways that variations in genotype arise in a population? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. What five assumptions must be made for the Hardy-Weinberg genetic equilibrium to apply to a population? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

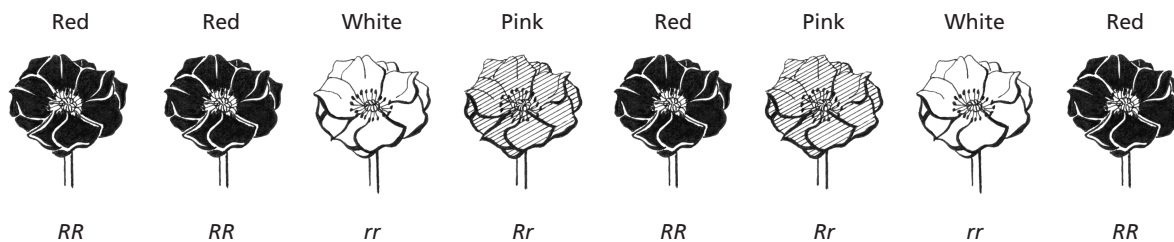
4. **Critical Thinking** Does a gene pool include the genes of individuals that cannot reproduce?

Explain your answer. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**STRUCTURES AND FUNCTIONS** The drawing below shows a population of four o'clock flowers. Using the information given in the table below the drawing, predict the phenotype frequencies and allele frequencies in the offspring of this population. Write your answers in the table below. Show your calculations.



PARENTS		OFFSPRING	
Phenotype frequency	Allele frequency	Phenotype frequency	Allele frequency
Red: 0.5	$R$ : 0.625	Red: _____	$R$ : _____
White: 0.25	$r$ : 0.375	White: _____	$r$ : _____
Pink: 0.25		Pink: _____	

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