# Roland-Story Biology Class

## Chapter 15 Study Guide

## Populations

Name _____

**Section: How Populations Grow**

Complete each statement by writing the correct term or phrase in the space provided.

1. A(n) _____consists of all the individuals of a species that live together in one place at one time.

2. The statistical study of all populations is called _____ .

3. The way individuals of a population are arranged in space is called _____ _____.

4. Demographers are interested in predicting how the _____ of a population will change.

**Read each question, and write your answer in the space provided.**

5. Why is size an important feature of a population?

6. Why is density an important feature of a population?

7. What is a population model?

8. How is the growth rate of a population calculated?

9. What are density-dependent factors? Give an example of a density-dependent factor.

10. What is the logistic model of population growth?

Complete each statement by writing the correct term or phrase in the space provided.

11. In a(n) _____, the rate of population growth is constant.

12. The population size that an environment can sustain is called the _____ _____.

**In the space provided, write the letter of the description that best matches the term or phrase.**

_____13. density-independent factors

_____14. r-strategists

_____15. K-strategists

_____16. density-dependent factors

a. grow exponentially when environmental conditions allow them to reproduce.

b. environmental conditions

c. their population density is usually near the carrying capacity of their environment

d. amount of limited resources

**In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.**

_____ 17. Which of the following are mosquito populations?

a. r-strategists
b. K-strategists
c. N-strategists
d. pq-strategists

_____18. Many r-strategists are found in a

a. stable environment.
b. rapidly changing environment.
c. humid environment.
d. slowly changing environment.

_____19. In general, r-strategists have all of the following characteristics EXCEPT

a. a short life span.
b. reproduction early in life.
c. parental care of offspring.
d. production of many offspring.

_____20. Populations that grow slowly are

a. K-strategists.
b. endangered.
c. genetically similar.
d. decreasing in allele frequency.

**Section: How Populations Evolve**

**In the space provided, write the letter of the description that best matches the term or phrase.**

_____ 1. natural selection

_____ 2. gene flow

_____ 3. genetic drift

_____ 4. nonrandom mating

_____ 5. mutation

a. the source of variation that makes evolution possible

b. a change in allele frequency because of random occurrences

c. individuals show preferences in the choice of breeding partners

d. one of the most powerful agents of genetic change

e. the movement of alleles into or out of a population

**In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.**

_____ 6. The Hardy-Weinberg principle states that

a. an equation can be used to predict phenotype frequencies in a population.
b. the frequencies of alleles in a population do not change unless evolutionary forces act on the population.
c. dominant alleles automatically replace recessive alleles.
d. populations change in the absence of evolutionary forces.

_____ 7. Small populations are more likely to undergo which of the following?

a. natural selection
b. mutation
c. genetic drift
d. gene flow

_____ 8. When a female bird prefers to mate with males with long tail feathers, this behavior is called

a. genetic drift.
b. natural selection.
c. nonrandom mating.
d. gene flow.

_____ 9. Evolutionary forces acting in a population can cause allele frequencies to

a. change.
b. stabilize.
c. disappear.
d. be expressed.

_____10. An allele can increase or decrease in frequency, depending on how that change affects a species'

a. survival and reproduction.
b. habitat.
c. carrying capacity.
d. dispersion.

**Read each question, and write your answer in the space provided.**

11. Explain why natural selection does not act directly on genes.

12. Given that people with hemophilia rarely reproduce, why has natural selection not eliminated hemophilia from the population?

**Complete each statement by writing the correct term or phrase in the space provided.**

13. A trait that is influenced by several genes is called a(n) _____ trait.

14. A hill-shaped curve centered around an average value is called a(n) _____

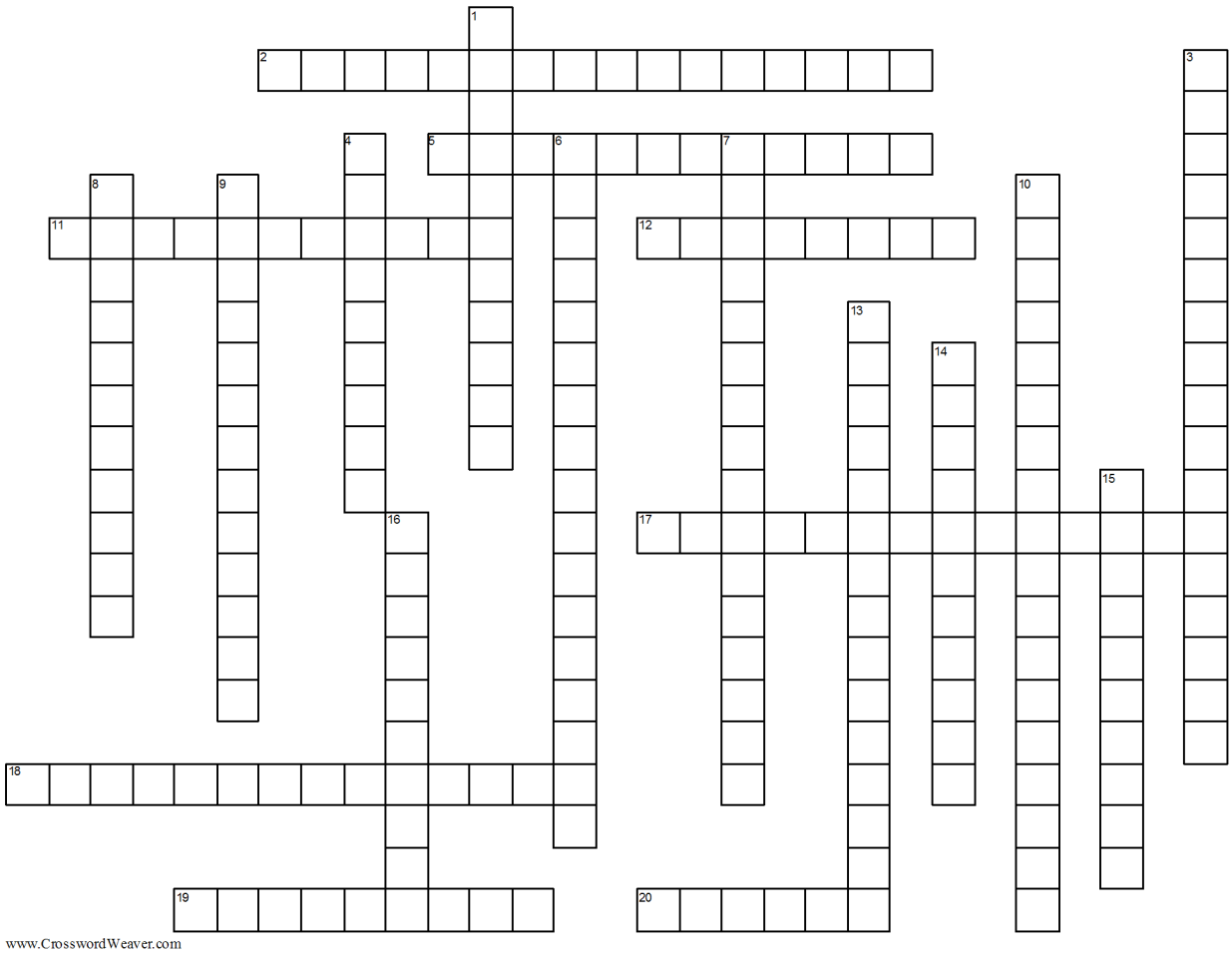
_____.

**Read each question, and write your answer in the space provided.**

15. What is directional selection?

16. What is stabilizing selection?

## Crossword puzzle of vocabulary terms




**Clues on next page**

ACROSS

2 the largest population that an area can support at any given time
5 the random change in allele frequency in a population
11 a species that is adapted for living in an environment where changes are fast and unpredictable
12 the movement of genes into or out of a population due to interbreeding
17 the number of individuals in a population
18 a characteristic of a living thing that is controlled by many genes
19 a type of mating in which individuals prefer to mate with others that live nearby or are of their own phenotype
20 a distribution of numerical data whose graph forms a bellshaped curve that is symmetrical about the mean

DOWN

1 a natural selection process in which one genetic variation is selected and that causes a change in the overall genetic make-up of the population
3 the number of individuals of the same species that live in a given unit of area
4 a model of population growth that says that a limited amount of resources limits the growth of a population
6 growth in which the number of individuals in a population gets a lot bgger in each time period that follows
7 a variable affected by the number of living things present in the given area
8 a species that has slow maturation, few young, slow population growth, reproduction late in life, and a population density near the carrying capacity of the environment
9 the principle that says that the frequency of alleles in a population does not change unless evolutionary forces act on the population
10 a variable, such as climate, that affects a population and has nothing to do with the population density
13 a hypothetical population that trys to show the key characteristics of a real population
14 a type of natural selection in which the average form of a trait is favored and becomes more common
15 the way that living things in a population are spaced out
16 a group of living things of the same species that live in a specific place and mate with each other