AP Biology **Name** _____

CH 54 Guided Reading: Community Ecology Study Guide

10ed

1. **Define** a *community?*

2. This section will look at *interspecific* interactions. Be clear on the meaning of the prefix! To begin, **distinguish** between *intraspecific competition* and *interspecific competition.* **Give an example** of each.

Type of Competition	Explanation	Example
Intraspecific competition		
Interspecific competition		

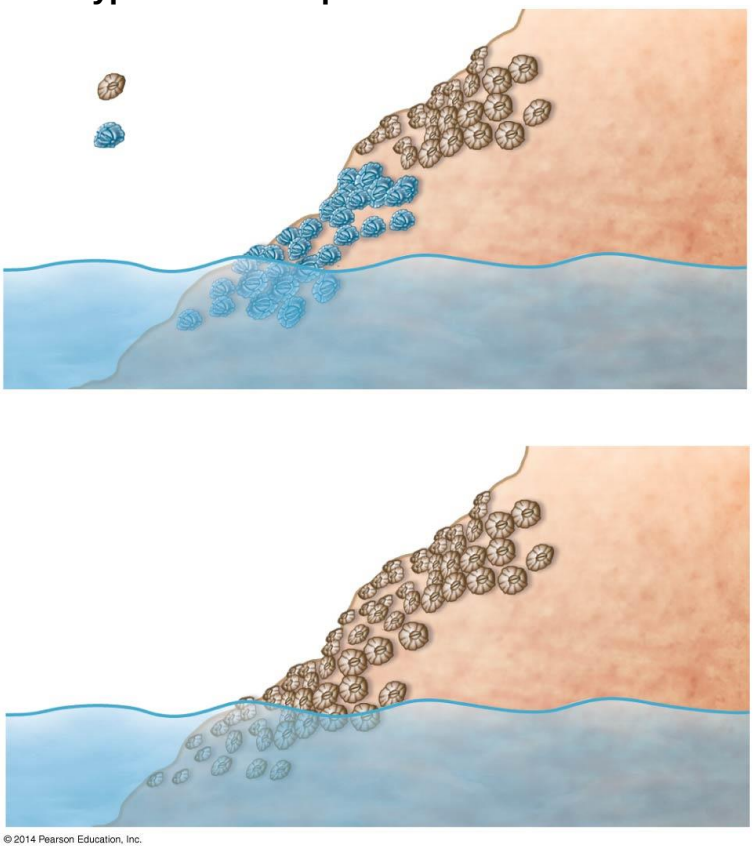
3. **Explain** G.F. Gause's *competitive exclusion principle?* **Give one example.**

4. **Define** *ecological niche.*

5. Several species of *Anolis* lizards live in the same types of trees and have a similar diet. **Discuss** *resource partitioning* to explain how interspecific competition is reduced.

6. **Describe** the difference between *fundamental niche* and the *realized niche?*

7. Use Inquiry Figure 54.3 to determine the realized niche and fundamental niche of the two barnacle species. If *Balanus* has a fundamental niche that is equal to its realized niche, **use arrows** to show the area both species would cover for both types of niches. **Your diagram will have a fundamental and realized arrow to show both niches types for both species.**



8. Study Figure 54.4 in your text, and then **explain** what is meant by *character displacement.*

9. **How** does character displacement reduce interspecific competition? In your explanation, **describe** the role of natural selection in character displacement.

10. Give examples of predator-prey combinations as listed in the following chart.

Predator	**Prey**	**Example**
Animal	Animal	
Animal	Plant	
Fungus	Animal	
Bacteria	Animal	
Fungus	Plant	

11. **List <u>three</u>** special adaptations that some predator species possess for obtaining food.
    -
    -
    -

12. **List <u>three</u>** ways prey species might elude predators.
    -
    -
    -

13. **Compare** the two types of mimicry.

Type of Mimicry	**Description**	**Example**
Batesian		
Müllerian		

14. **Define** *herbivory?*

15. **List <u>two</u>** adaptations for each category.
    Herbivore adaptations
    -
    -
    Plant adaptations to avoid herbivory
    -
    -

16. **Describe and give an example** of each of the following interactions.

Type of Interaction	**Description**	**Example**
Symbiosis		
Parasitism		
Mutualism		
Commensalism		

17. **Which** category in the previous chart includes the other three?

18. Your text uses +/-/0 symbols to indicate how interspecific interactions affect survival and reproduction of the two species. Use this notation for each of these interactions.

Type of Interaction	**+/+, +/-,-/-,+/0**
Predation	
Commensalism	
Mutualism	
Parasitism	
Interspecific competition	
Herbivory	

19. **Define** *species diversity?* **What** are two components? **Why** is it important?

-Define:

What?

–

–

Why?:

20. Your text works a simple Shannon diversity index to demonstrate that community 1 is more diverse than community 2. Looking at the formula and what determines species diversity, **explain** why community 1 is more diverse.

21. **What** does an ecologist summarize in a *food web?*

22. Know the levels of trophic structure in food chains. **Give an example food chain here**, including **four links** that might be found in a prairie community, and **tell the trophic level of each organism.**

23. According to the *energetic hypothesis,* **why** are food chains limited in length? **How** much energy is typically transferred to each higher level?

24. **What** is a *dominant species?* For the area where you live, **what** would be considered a dominant tree species?

25. **How** is a *keystone species* different from a dominant species?

26. **Name one** keystone species, and **describe** the effect its removal has on the ecosystem.

27. **Discuss** the *intermediate disturbance hypothesis?* **Give an example** of a disturbance event, and **explain** the effect it has on the community.
Discuss:

Example:

Explain:

28. Ecological succession is the changes in species that occupy an area after a disturbance. **What** is the difference between *primary succession* and *secondary succession?*

29. **Explain** *latitudinal gradients* in terms of species richness. **Where** is species richness greatest?

30. There are probably two key factors in latitudinal gradients. **List and explain both** here, and **put a star** next to the one that is probably the primary cause of the latitudinal difference in biodiversity.

31. *Evapotranspiration* is a function of light, temperature, and water and is highest in areas that have high temperatures and rainfall. **Explain** in terms of energy budgets why areas with high evapotranspiration tend to have the greatest species richness.

32. **Explain** what is demonstrated by a *species-area* curve.

33. Use species-area curves to **predict the effect** that habitat fragmentation has on extinction rates. **Justify** your prediction.

34. Renowned American ecologists Robert MacArthur and E.O. Wilson developed a model of *island biogeography.* Although the model can be demonstrated with islands, any isolated habitat represents an island. **What** are the **two** factors that determine the number of species on the island?

35. **What two** physical features of the island affect immigration and extinction rates?

36. **Why** do small islands have lower immigration rates? **Why** do they have higher extinction rates?

37. Closer islands have _____ extinction rates and _____ immigration rates.

38. **Explain** the *island equilibrium model?*

39. **What** is a *pathogen?*

40. **What** is a *zoonotic pathogen?* **List <u>two</u>** examples.
    What:

    Examples:
    -

    -

41. **What** is a *vector?* **List <u>three</u>** examples.
    What:

    Examples:
    -

    -

    -