Ecological relationships pogil packet answers

Name: _____

PREDATOR/PREY INTERACTIONS

INTRODUCTION

Organisms interact in many different ways. Some of the interactions have to do with feeding patterns. These feeding relationships make up what are called food chains.

Predator organisms feed upon other organisms, called *prey*. The predators depend on the populations of these prey organisms. The number of predator organisms depends on the numbers of their prey. Correspondingly, the number of prey organisms is limited by the number of predators that feed on them. In other words, the sizes of predator and prey populations are dependent on each other. This relationship depends upon the specific kinds of organisms and the conditions in which they live.

In this investigation, you will model interactions between a population of lynx and their prey, a population of snowshoe hare. You will measure the sizes of the populations as they change over several generations, and you will graph the data you obtain.

WARM UP

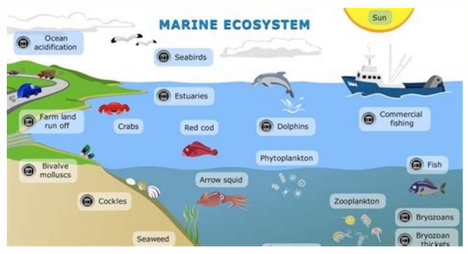
Lynx are an example of a predator organism. They feed almost exclusively on snowshoe hares, but will occasionally eat other small animal food. The hares therefore serve as prey for the lynx. As predators, lynx occur high in a food chain of forest organisms. Hares occur lower on the food chain. In modeling predator/prey interactions, one needs to make simplifying assumptions. In this investigation, you will assume that the lynx only feed on hares (which is not too much of a stretch in this case). You will also assume that lynx that can catch and eat a certain number of hares will survive and reproduce. These assumptions are like patterns that exist in nature, but do not mirror them exactly. The assumptions are useful, however, in simplifying the model so that population patterns emerge.

MATERIALS

- 200 small squares (hares)
- 1 large cardboard square (lynx)
- Graph paper
- Metric ruler
- chalk

PROCEDURE

1. You will simulate 25 generations of hares and lynx that live within a habitat. For this simulation, assume that each hare not eaten by a lynx survives and produces one offspring. To avoid starvation, each lynx must catch at least three hares. Assume that each surviving lynx produces one offspring for every three hares caught. To represent the habitat, use chalk to mark off a 50 cm x 50 cm square on your table top.
2. Place 100 of the hare squares randomly within the habitat square. Do not allow any to overlap. This set of 100 squares represents the first generation of the hare population. Set aside the 100 remaining hare squares in a pile for later use.



Study.com

Quiz & Worksheet - Symbiotic Relationships

http://study.com/academy/practice/quiz-worksheet-symbiotic-relationships.html

1. An example of defense symbiosis is

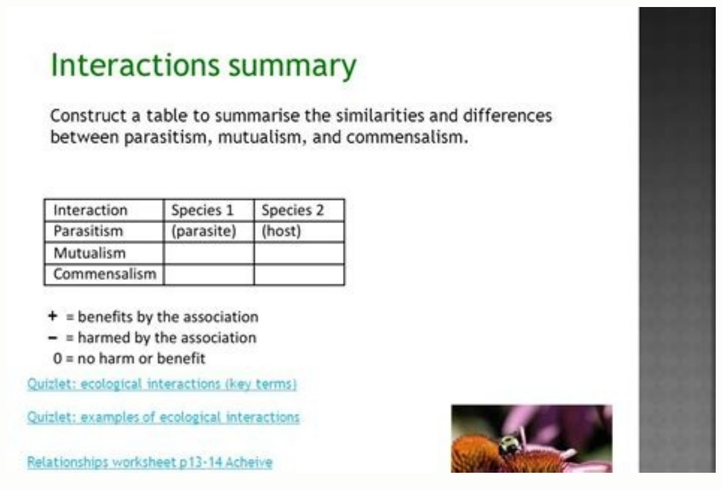
- ticks and leeches.
- bees and flowers.
- algae and fungus.
- clownfish and sea anemones.

2. Which type of symbiosis describes two species living together by choice?

- Obligate symbiosis
- Facultative symbiosis
- Parasitism
- Pollination symbiosis

3. Which is NOT one of the four main types of symbiosis?

- Aminalism
- Commensalism
- Mutualism
- Parasitism



Interactions summary

Construct a table to summarise the similarities and differences between parasitism, mutualism, and commensalism.

Interaction	Species 1	Species 2
Parasitism	(parasite)	(host)
Mutualism		
Commensalism		

+ = benefits by the association
− = harmed by the association
0 = no harm or benefit

Quizlet: ecological interactions (key terms)

Quizlet: examples of ecological interactions

Relationships worksheet p13-14 Acheive

Population Distribution 1 Population Distribution How does population distribution affect the environment? Why? Alaska contains over 127 million acres of untouched forest land. It is the largest state in the United States, yet with a population of nearly 700,000 people it has the same total population as Austin, Texas. New Jersey is one of the smallest states and home to a population of nearly 9 million, but almost 1.8 million of its 4.4 million total land acres are untouched natural woodland. What are the reasons for the ways popula-tions organize themselves, and what effect does this organization have on the environment? Model 1 – Population Density and Distribution 2 km2 kmHabitat 1Habitat 4Habitat 3Habitat 5Habitat 2 = individual organism 1. Refer to Model 1. a. What do the dots in the diagrams represent? b. What do the boxes in the diagrams represent? 2. Calculate the area of a single habitat. 3. Consider the arrangements of the dots in Model 1. a. Describe the arrangements of the dots in habitat 3. Individual organisms Area of habitat 4 km^2 Uniform, evenly distributed Manuel TzulEDU. SEC. ScienceEcology 2 POGIL ™ Activities for High School Biology b. Describe the arrangement of the dots in habitat 4. 4. Fill in the table below by counting the number of individuals in each habitat in Model 1 and then calculate the area available per individual. Habitat No.Area (km 2)No. of IndividualsNo. of Individuals/Unit area (Density) 12345 5. Refer to the completed table above. a. Which habitat shows a high population density ? b. Which habitat shows the lowest population density? 6. Draw a vertical line through the middle of each of the boxes in model 1. Label the left side “a” and the right side “b” on each box. Complete the table below for each half of each habitat. Habitat No.Area (km 2)No. of IndividualsNo. of Individuals/Unit area (Density) 1a b2a b3a b4a b5a b 7. For which of the habitats in Model 1 is population density very similar between sides a and b? 8. For which of the habitats in Model 1 is the population density quite different between sides a and b? Grouped together 4 4 4 4 4 31 4 12 15 7 7.75 /km^2 1/km^2 3/km^2 3.75/km^2 1.75/km^2 Habitat 1 Habitat 2 2 2222 2222 2 16 15 3 1 6 6 11 4 5 2 8/km^2 7.55/km^2 1.5/km^2 0.5/km^2 3/km^2 3/km^2 5.5/km^2 2/km^2 2.5/km^2 2/km^2 Habitat 1 &3 habitat 2,4,&5 Population Distribution 3 9. Label each of the diagrams on Model 1 using the terms clumped (clustered), random, and uniform (even) to describe the population distribution within the boxes.10. Compare and contrast the terms population density and population distribution.11. Assuming the population size stays constant, propose at least two factors that might cause a population to shift from a low density habitat to a high density habitat?12. Animals such as lions or wolves often show clumped distribution. Give a reason why this would be advantageous for these animals.13. Other than social reasons, list any other factors that may lead to clumped distribution patterns in populations.14. For each of the organisms listed below state the type of population distribution and population density of their habitat. Give a reason for each answer. OrganismDistributionDensityReasonTigersBison AntsDandelions Apple trees in an orchard 1, 3= uniformed 2,5=random 4=chomped density is the number of individuals per unit area. distribution is the arrangemnet of individuals in a given ar Loss of food source and change in enviornment Lions and wolves are social animals living and hunting in groups. each group is territorial so their territories do not overlap. The patterns of avialable resources in their enviornment, such as clustering around watering sites, may bfactor. Other factors may include protection from predators and the inability to move from one place to another, such as new bord who depend on their mothers. uniform clumped clumped Random Uniform Low High High High Territorial and hunters herding animals Live in organized colonies seeds dispersed by wind so individuals land and grow at random Evenly spaced to avoid competition

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