Name _____ Date _____

Population Ecology

Section 1 Population Dynamics

Main Idea — **Details**

What is the main idea for this section?

_____

_____

_____

Review Vocabulary

Use your book or dictionary to define population.

population _____

_____

New Vocabulary

Compare the terms in the tables by defining them side by side.

population density

dispersion

population density	dispersion

density-independent factor

density-dependent factor

density-independent factor	density-dependent factor

population growth rate

emigration

immigration

population growth rate	
emigration	immigration

carrying capacity

carrying capacity

Academic Vocabulary

Define fluctuate to show its scientific meaning.

fluctuate _____

_____

Name _____ Date _____

Section 1 Population Dynamics (continued)

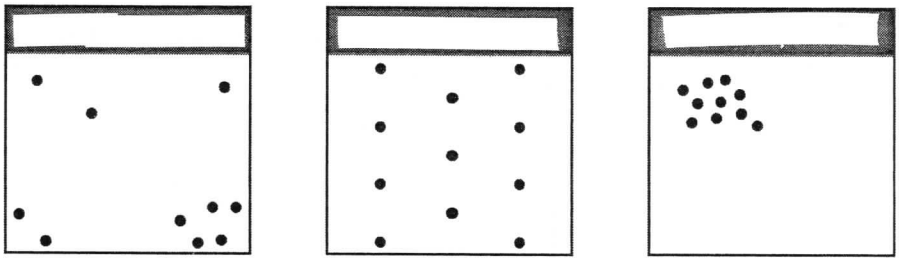
Main Idea

Population Characteristics

I found this information on page _____.

Details

Identify each pattern of dispersion represented below.



_____ _____ _____

Analyze why populations are limited in their spatial distribution.

_____

_____

Classify each limiting factor below as either density-independent or density-dependent by placing an X in the appropriate column.

Factor	Density-Independent	Density-Dependent
Lava flow		
Number of predators		
Spread of disease		
Especially cold winter		
Toxic chemical spill into a stream		
Another species competing for the same resources		
Diverting a river for irrigation		
Fungus that attacks elm trees		

Analyze how the expansion of housing developments in southern California might limit coyote populations in the area.

_____

_____

_____

_____

Name _____ Date _____

Section 1 Population Dynamics (continued)

Main Idea

Details

Population-limiting factors

I found this information on page _____.

Identify four main factors in a population's growth rate.

Factors in Population's Growth Rate	
☐	☐
☐	☐

Compare the general shapes of the curves of population growth graphs. Draw the appropriate graph. Label the lag phase, exponential growth phase, and carrying capacity. Below each graph, describe what the graph shows.

Exponential Population Growth	Logistic Population Growth

SUMMARIZE

Analyze whether humans are r-strategists or k-strategists. Explain why. Support your reasoning.

_____

_____

_____

_____

Estimating Population Practice: Mark and Recapture Technique

An ecologist wants to estimate the size of a population of snapping turtles in a lake. She captures 20 turtles on her first visit to the lake, and marks their backs with paint. She returns each week for the next five weeks and captures some turtles, her data is listed below. Calculate the estimated population size using the equation we discussed in lab. Show your work!

$$\frac{(\#\ \text{Captured}) \times (\#\ \text{MARKed})}{\#\ \text{caught w/MARK}} = \text{Pop Size}$$

Week	Number Captured	Number with a Mark
1	15	5
2	10	5
3	13	4
4	20	5
5	15	4
Totals		

Estimating Population Practice: Random Sampling Technique

Scientists are trying to estimate the population of white tailed deer in the Honey Oaks Forest Reserve. They have sectioned off the forest into 36 equal sized grids. Use the data they collected to estimate the number of white tailed deer in the forest. Show your work.

3					1
		5			
				6	
7					
				3	
	2				

Challenge: Design a Solution to one of the following scenarios.

Scenario 1

A famous rock band has offered to do a free concert in your community. You are a news reporter who has been asked to estimate the number of people who attend the concert. You have 100 autographed concert tee shirts that you can use to "mark" people attending the concert. Describe how you would use the tee shirts and the mark-recapture technique to estimate the number of people who attend the concert.

Scenario 2

Yellowstone National Park rangers have captured 100 bison. They would like you to design a mark-recapture experiment to estimate the size of the bison population. Describe how you would use the mark-recapture technique to estimate the size of the bison population in Yellowstone National Park.