

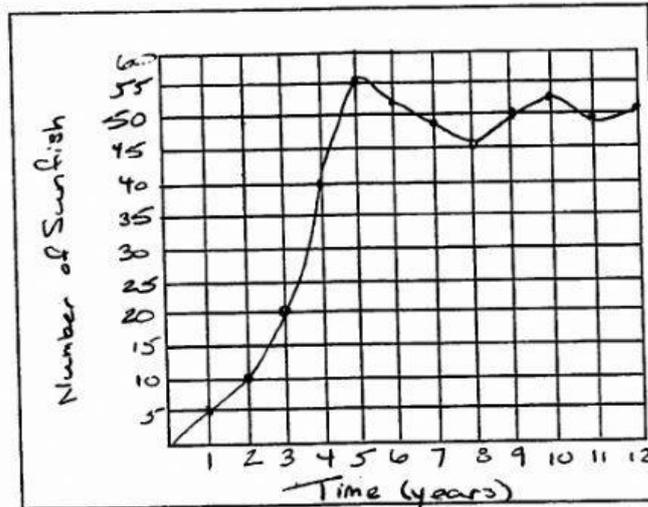
Name: \_\_\_\_\_

Date: \_\_\_\_\_

## CARRYING CAPACITY

**INSTRUCTIONS:** Living things occupy certain regions of the world called *ecosystems*. The plants and animals in one ecosystem live together and depend on each other for food and shelter. If certain factors change, such as weather or the introduction of predators, the ecosystem will not support the same number of organisms. In this exercise, the number of sunfish in a pond ecosystem is charted for a 12 year period. Graph the number of sunfish on the vertical axis and the year on the horizontal axis. Label both axes and give your graph a name. Then, answer the questions below using the graph.

| YEAR | NUMBER of SUNFISH |
|------|-------------------|
| 1    | 5                 |
| 2    | 10                |
| 3    | 20                |
| 4    | 40                |
| 5    | 55                |
| 6    | 52                |
| 7    | 48                |
| 8    | 45                |
| 9    | 50                |
| 10   | 53                |
| 11   | 49                |
| 12   | 51                |



### ANSWER THESE QUESTIONS USING THE GRAPH:

1. During which year did the most rapid growth of sunfish take place? \_\_\_\_\_
2. During which years did the population decrease? \_\_\_\_\_
3. What kinds of factors could have caused the decrease? \_\_\_\_\_  
\_\_\_\_\_
4. The number of organisms an ecosystem can support is *carrying capacity*. Use the graph to determine the carrying capacity of this pond for sunfish. \_\_\_\_\_
5. In order for algae to grow in water ecosystems, the element phosphorus is needed. Even though sunfish do not eat algae, why would the sunfish population decrease in a year when phosphorus was limited?  
\_\_\_\_\_  
\_\_\_\_\_
6. During years 2 and 3, the number of minnow doubled in the pond. Using the graph, minnows must be:
 

|                           |                         |
|---------------------------|-------------------------|
| a. Competitors of sunfish | c. Predators of sunfish |
| b. Parasites of sunfish   | d. Prey for sunfish     |