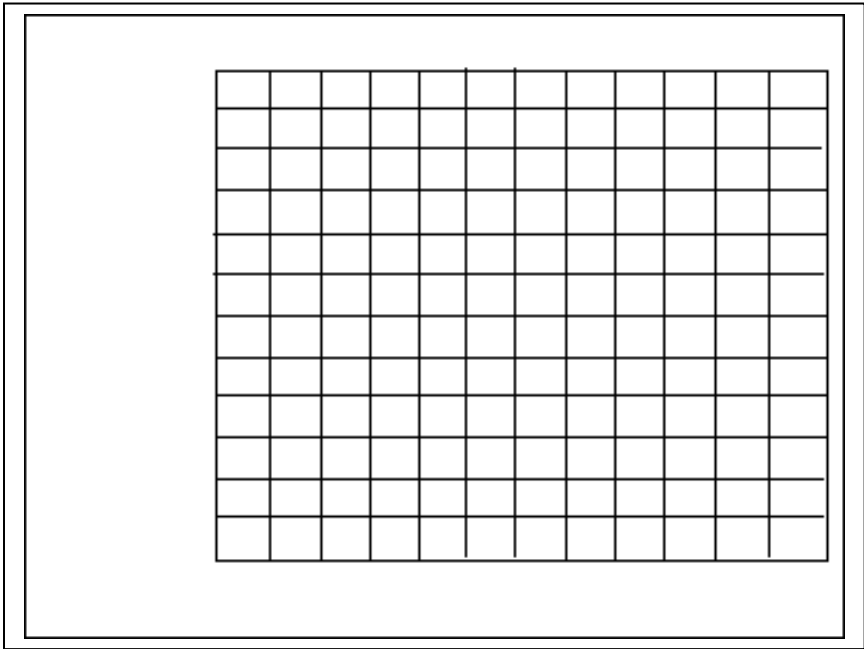


Name _____ Block _____

Objective 1 Assignment From 9-28 Practice TAKS Test

DIRECTIONS Questions 1-5: 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 are 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 in sunfish take place? _____

2. During which year did the population decrease? _____

3. What kind of factors could have caused a decrease?

4. The number of organisms an ecosystem can support is it's 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?

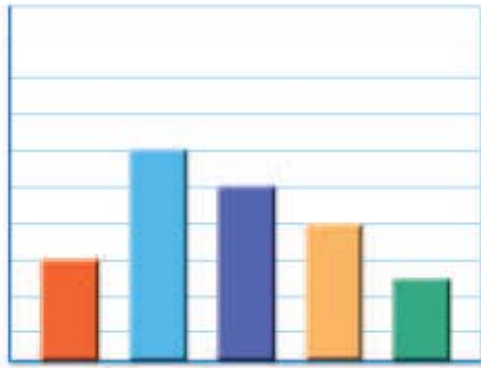


Figure 1

6. What day of the week is most productive, according to *Figure 1*? _____
7. What day of the week is least productive? _____

Experimental Design Scientific Method

8. An experiment is set up to measure the time that a pendulum takes to swing back and forth 20 times. The pendulum consists of a mass at the end of a string and is released from a certain height above the lowest point in the pendulum's path. For the first part of the experiment, the length of the string is shortened by 5 cm and the time is measured.

a. What is the independent variable? _____

b. What is the dependent variable? _____

c. What should the controlled variables be? _____

9. A study examines how reduced gravity over long periods of time affects the

bones of astronauts. The conditions of the astronauts are recorded before the astronauts go into orbit and are recorded again upon their return. Different groups of astronauts spend different amounts of time in space aboard the same space station.

a. What is the independent variable? _____

b. What is the dependent variable? _____

c. How does the fact that the astronauts go to a single space station serve as a control?

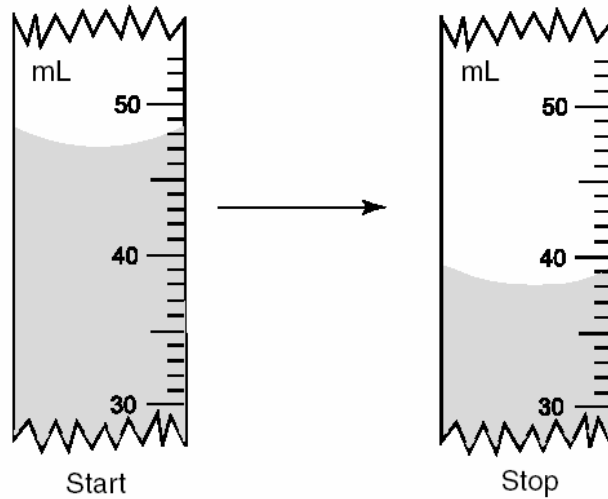
d. Explain how a similar group of astronauts who remain on Earth during the same period of time serves as a control group.

10. Which of the following will allow measurement of a liquid's volume with the greatest precision?

- A 50 mL cylinder graduated in 1 mL increments
- B 100 mL cylinder graduated in 0.5 mL increments
- C 100 mL cylinder graduated in 1 mL increments
- D 200 mL cylinder graduated in 5 mL increments

_____ Explain your choice

11.



The illustration shows volume levels of a liquid in a graduated cylinder before and after a sample was removed. According to this information, what was the volume of the sample to the nearest milliliter? _____

12. Which of these is a hypothesis that can be tested through experimentation?

- A. Bacterial growth increases exponentially as temperature increases.
- B. A fish's ability to taste food is affected by the clarity of aquarium water.
- C. Tadpoles' fear of carnivorous insect larvae increases as the tadpoles age.
- D. The number of times a dog wags its tail indicates how content the dog is.

_____ Explain your choice

When opening a container of cranberry juice, you noticed the label "refrigerate after opening." You also notice this label on a variety of other food containers, such as mayonnaise bottles and tuna cans. Why does the food have to be refrigerated once the can or bottle is opened, but not before? What would happen if the food were not refrigerated after opening? What does refrigeration do?

13. Make several hypotheses that could explain why certain foods can remain unrefrigerated before opening, but not after opening. 14. Then design an experiment to test one of your hypotheses. 15. What results would you observe if your hypothesis is true? What results would you observe if your hypothesis is false?

