

# BIOLOGY



Ms. Von Burg  
Ms. Clisby  
Ms. Rinaldo

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

Lab # 3

Lab Title: Graphing Lab

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

Lab Partner(s): \_\_\_\_\_

\_\_\_\_\_

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

Lab Partner: \_\_\_\_\_  
Period: \_\_\_\_\_

**Living Environment**  
**Lab # \_\_\_\_: Introduction to Graphing**

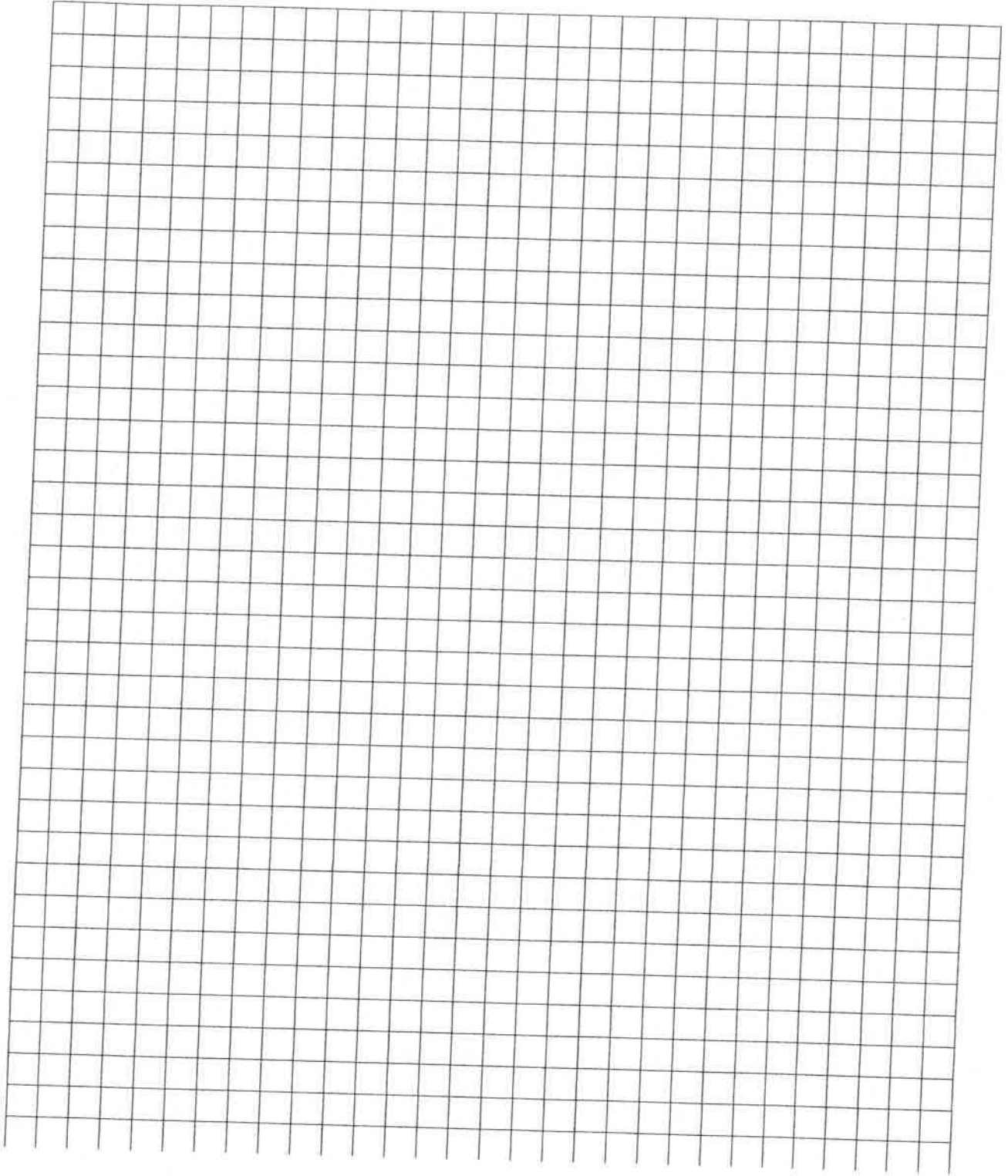
Graphs are beneficial because they summarize and display information in a manner that is easy for most people to comprehend. Graphs are used in many academic disciplines, including math and science; however, they can be easily applied to other subject areas. Different graphs are used depending on the information that individuals wish to convey. Many graphs are used to concisely and clearly summarize data; the best type of graph to use depends on the type of data being conveyed. This lab will help you become more familiar with representing data in graph form in addition to applying your analysis skills to answer questions related to each respective graph.

*Directions: For each research project described below, draw the appropriate graph (line vs. bar), label all axes, create a title, and answer the questions. Graph paper is attached at the end of this lab.*

1. A study was conducted on the feeding preferences of slugs. Specimens were fed a variety of food sources and data were collected on number of grams of each type of food eaten. Construct the appropriate type of graph and make a conclusion on food preference

Food Source	Food Eaten (grams)
lettuce	4.0
Mushroom	8.2
Dog food	0.0
Spinach	6.5
Apple	8.6
Peach	5.4
orange	1.0

- a. What type of graph will you use? \_\_\_\_\_
- b. What is the dependent variable? \_\_\_\_\_
- c. What is the independent variable? \_\_\_\_\_
- d. Which food source was favored by slugs the most, and how do you know that?  
\_\_\_\_\_  
\_\_\_\_\_
- e. Give your graph a title.
- f. Why was this graph drawn as a bar graph? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

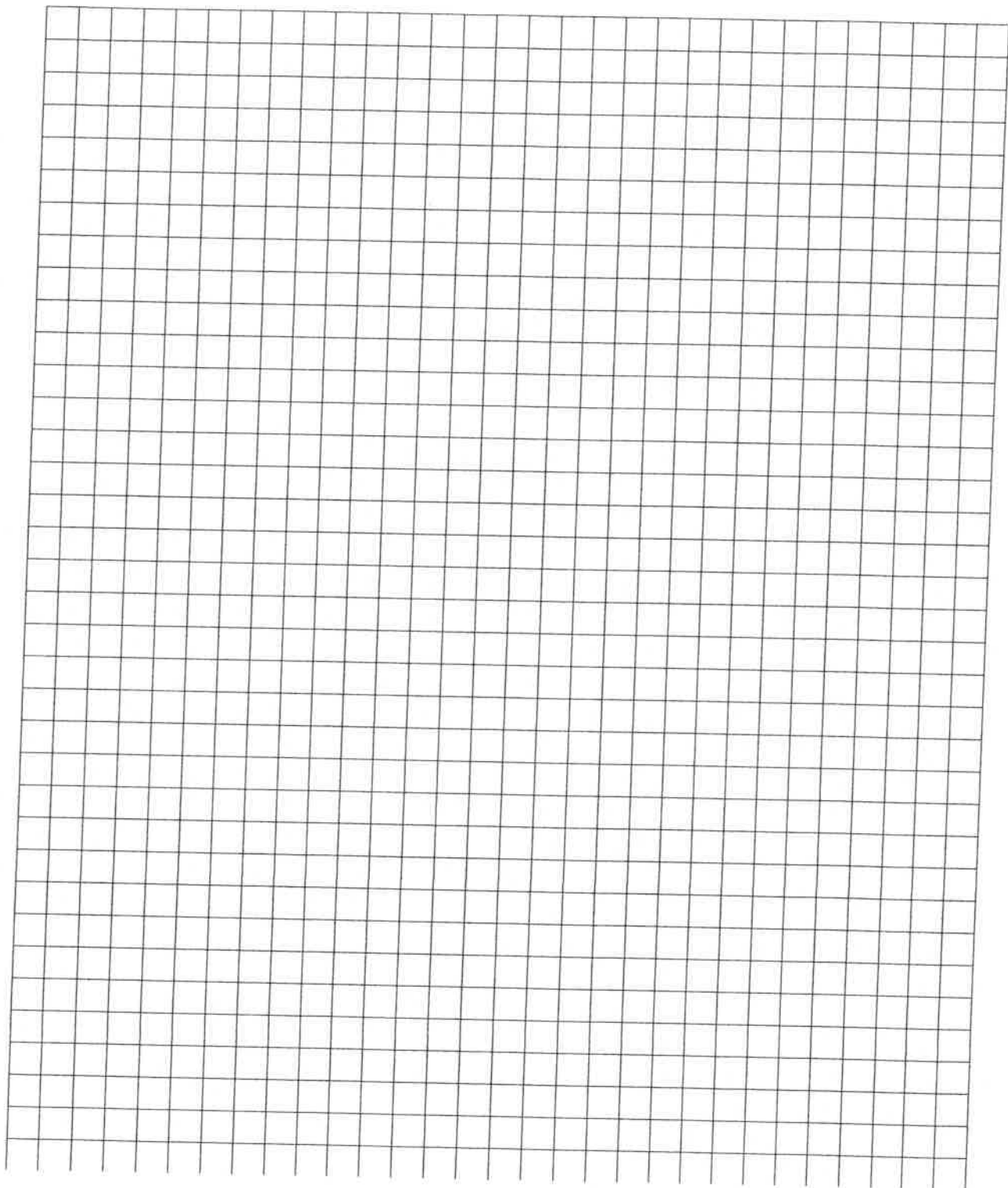


2. Baby chickens require a constant source of food. As chickens grow, more energy is needed for daily activities. The following table gives the grams of food eaten by a chick over a 5-day period. Construct the appropriate type of graph and predict the amount of food that would have been eaten by the chick on the 3rd and 6th day.

Number of Days	Food Eaten (grams)
0	0.0
1	1.0
2	3.5
3	??
4	8.5
5	11.0
6	??
7	16.5

**NOTE:** You must use the GRAPH — not any calculations — to determine the missing data.

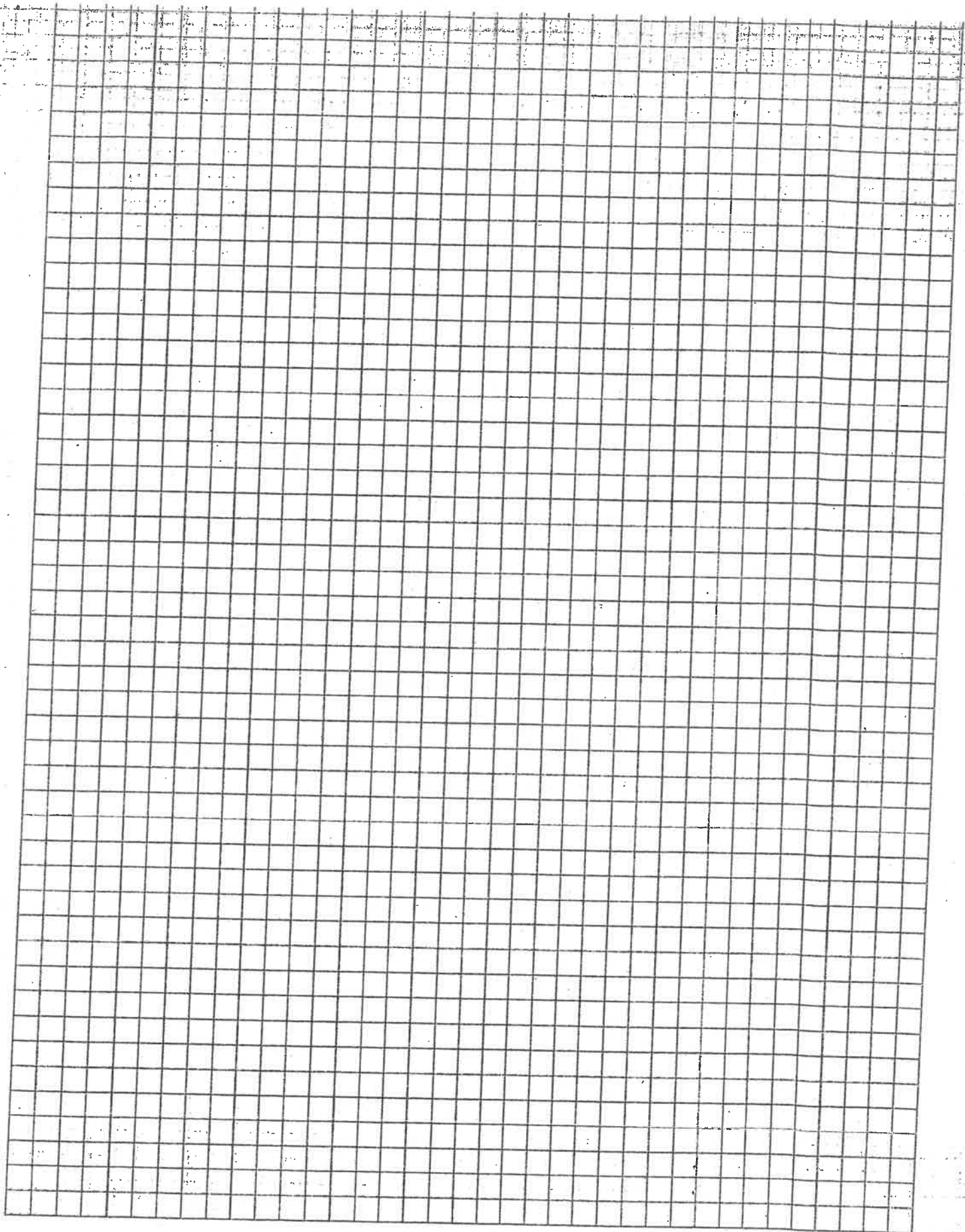
- What type of graph will you use? \_\_\_\_\_
- What is the dependent variable? \_\_\_\_\_
- What is the independent variable? \_\_\_\_\_
- Complete the data table above for Day 6 and Day 7.
- Give your graph a title.
- Why was this graph drawn as a line graph? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



3. A study was made of endangered birds to see if their populations were increasing by being protected from hunters. Scientists went out into the field every ten years and counted the number of Whooping Crane, California Condor, and Black Swans they found in their spring feeding grounds. Review the data table below and draw an appropriate graph with labeled lines and axes and a title.

Bird Species	Years		
	1950	1960	1970
Whooping Crane	24	41	78
California Condor	76	43	20
Black Swan	56	58	57

- What type of graph will you use? \_\_\_\_\_
- What is the dependent variable? \_\_\_\_\_
- What is the independent variable? \_\_\_\_\_
- Write a title on your graph.
- By interpreting the graph, make a conclusion about the Whooping Crane population.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- By interpreting the graph, make a conclusion about the California Condor population.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- By interpreting the graph, make a conclusion about the Black Swan population.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



4. A study was undertaken to measure the effects of smoking on the rate of development of lung cancer in both men and women. Construct the appropriate type of graph and make a conclusion from the data

Age Group	Annual Death Rate from Lung Cancer (per thousand)		
	Heavy Smokers (>1 pack/day)	All Smokers	Never Smoked
35-44	2.5	2.0	0.0
45-54	10.2	6.5	0.0
55-64	22.5	16.5	2.0
65-74	60.0	23.0	4.2
75-84	85.0	25.2	6.4

a. What type of graph will you use? \_\_\_\_\_

b. What is the dependent variable? \_\_\_\_\_

c. What is the independent variable? \_\_\_\_\_

d. Give your graph a title.

e. By interpreting the graph, make a conclusion about the effect of smoking.

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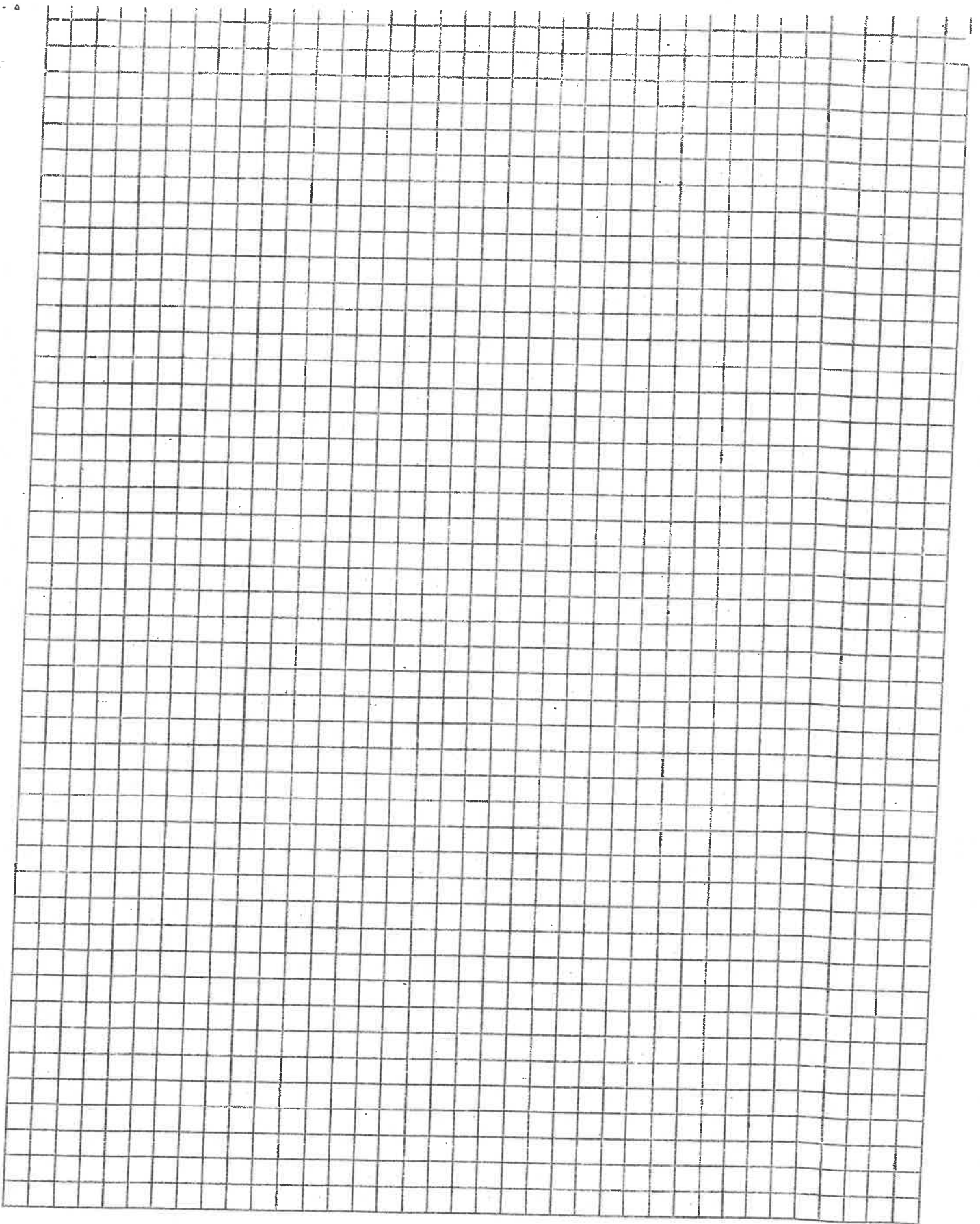


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# Graphing

Graphs are a visual way to organize and show data. Some types of graphs include line, pie, bar, double line.

## How to Graph:

Step 1 - Always use a pencil!! Always use a ruler!!

Step 2 - Draw 2 intersecting axis lines  
x is horizontal, y is vertical



Step 3 - DRY MIX - tells us which data goes on the x and y axis

Determine which is dependent variable and which is the independent

D - dependent  
R - results  
Y - axis

m - manipulated  
I - independent  
X - axis

Step 4 - Read over data table and determine numerical intervals for each axis. Remember that intervals must be consistent ex: count by 2's or count by 10's

Step 5 - Label each axis  
(hint: use data table categories to help you)

Step 6 - Title each graph according to the lab information  
(Be specific)

Step 7 - Look at data table and begin to plot points or draw bars.

Step 8 - Color bars or join the points (if a line graph)

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

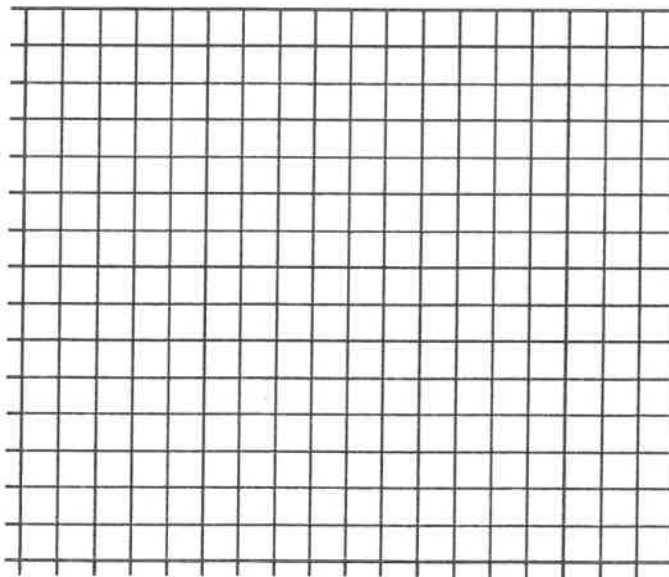
Period: \_\_\_\_\_

Living Environment

Graphing Practice Wkst

1. A clam farmer has been keeping records concerning the water temperature and the number of clams developing from fertilized eggs. The data is recorded below.

Water Temp °C	Number of developing clams
15	75
20	90
25	120
30	140
35	75
40	40
45	15
50	0



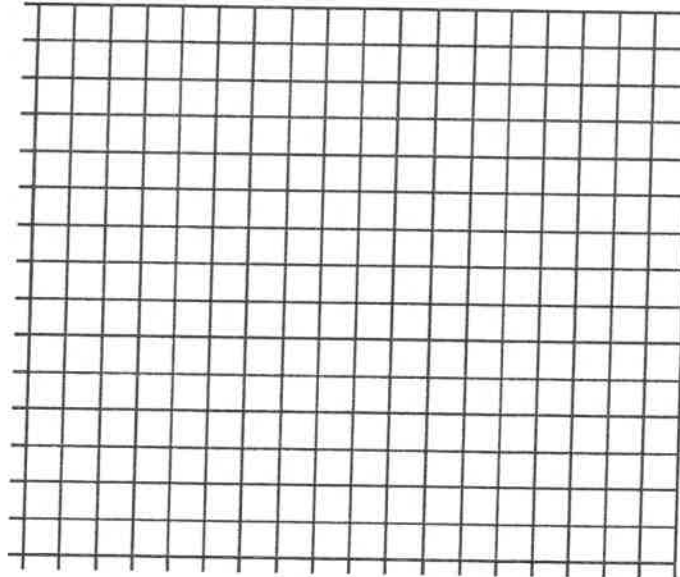
- a. Label each axis.
- b. Mark an appropriate scale.
- c. Graph the data. Surround each point with a small circle and connect the points.
- d. What is the dependent variable? \_\_\_\_\_
- e. What is the independent variable? \_\_\_\_\_
- f. What is the optimum temperature for clam development? \_\_\_\_\_

2. In Louisiana, a restaurant who serves the best frog legs is trying to determine what pH would allow the most number of tadpoles to survive. They found the following data: pH 6.5 had 88 survivors, pH of 8.0 had 45 survivors, pH of 7.0 had 78 survivors, pH of 5.5 had 23 survivors, pH of 7.5 had 69 survivors, and pH of 6.0 had 43 survivors.

a. Organize the data into the following table:

pH of water	Number of tadpoles

- b. Label each axis and mark an appropriate scale.  
 c. Graph the data. Surround each point with a small circle and connect the points.



- d. What is the dependent variable? \_\_\_\_\_  
 e. What is the independent variable? \_\_\_\_\_  
 f. What is the optimum water pH for tadpole survival? \_\_\_\_\_  
 g. How many tadpoles would we expect to find in water with a pH reading of 5.0?  
 \_\_\_\_\_

