

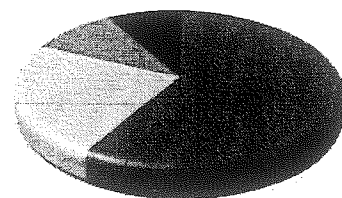
I#6: Lucky Charms Quality Control Project/Lab PRELAB

11/07/18 due 10/30/18 to participate in I#6

There's a **GRAPH** for That! Name: _____

Practice Using, Making & Interpreting Graphs

Numbers, numbers, and MORE numbers. There is a metric TON of data in science. Seriously. It's hard to understand all of the numeric information that comes with scientific experimentation, unless, of course, you represent it graphically! Graphs are a great way to visually show what the numbers look like and allow you to analyze the data more quickly based on what you see. Let's learn about some of the most common types of graphs.



What You Need to Know:

There are several ways data can be represented visually in graphs or charts.

PIE CHART: Used to show percentages or parts of a whole. For example, representing the various music tastes of your class population or the number of students that play different sports in your school.

LINE GRAPH: Used to show how numerical data changes over time. You would use a line graph to represent how many inches you've grown each year since you were born or how many books you read each month. **Double line graphs** compare sets of data over the same period and use different colors or line styles to show the data.

BAR GRAPH: Used to compare the measurement or frequency of several different categories. For example, you could use a bar graph to show the snack preferences of students and the amount of each snack eaten in the school cafeteria.

DOUBLE BAR GRAPH: Used to show comparison between sets of data. A company might use a bar graph to show how their sales have increased each month over the last three years

Each type of chart requires a title, labels to identify the data used, a legend or key, and a data table that shows the data that is used to construct the chart or graph. Your title should explain what you are showing in the graph. So, if you're talking about how much you've grown since birth, you might title that graph "My growth in centimeters over time." If you're making a chart to represent the music tastes of students in your class, you might say "Music Preferences of Mrs. So-and-So's Class." Whenever you graph data, it's important to label your graph, whether it's the X and Y axes, the bars on a graph, or a pie chart. Your labels should show what you are comparing, such as "Height" over "Time" or "Rock", "Jazz" and "Country." If you are constructing a line or bar graph, be sure to label the graph with the appropriate numbers and in the right increments. If your data only goes to 20, you wouldn't make your graph go to 100, and you might divide the graph into increments of 2. You'll need a legend or key showing what all of this stuff means. What colors did you use for what? Did you use different lines to represent different data? Last but not least, you must have a data table that shows how you made this graph. Where did all of this information come from? Ready to practice? Let's go!

There's a GRAPH for That! Name: _____

Practice Using, Making & Interpreting Graphs

What You Do:

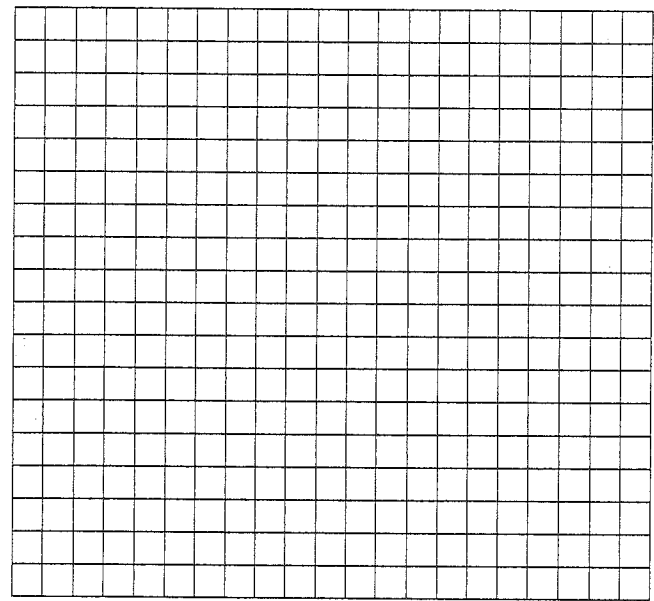
For each of the following:

- Gather any data required and/or graph your data
- Title and label your graph (X/Y axes, data, graph increments) and create a key
- Answer any questions that follow each graph

1. Survey the students in your class to obtain the following information. Make a bar graph.

Title: _____

Dessert Type	# of Students
Ice Cream	
Brownie	
Cake/Cupcake	
Pie	
Cookies	

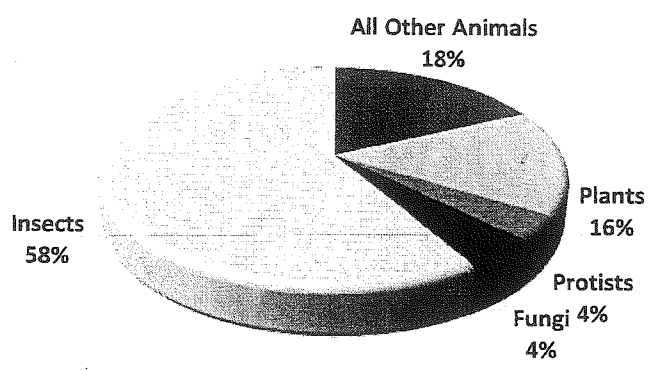


- a. What is the most common preference of dessert among the students of your class?
- b. What is the least liked dessert preference?
- c. If the cafeteria sold out of the number one choice, what would be the best second choice for them to offer in order to increase their dessert sales?

2. Answer the questions about the pie chart below.

- a. According to the graph, which species is the most abundant on Earth?
- b. What percentage of the graph includes human beings?
- c. How does the percentage of Protists compare to the percentage of Plants with respect to diversity?

SPECIES DIVERSITY



There's a GRAPH for That! Name: _____

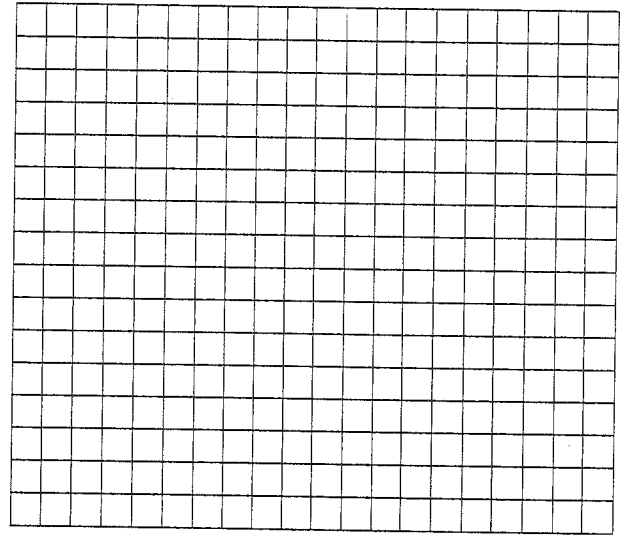
Practice Using, Making & Interpreting Graphs

What You Do:
(continued...)

3. Make a **line graph** for the following information.

Heart Rate (BPM)	Minutes
62	0
98	5
122	10
136	15
145	20
148	25
146	30
128	35
115	40
85	45
70	50

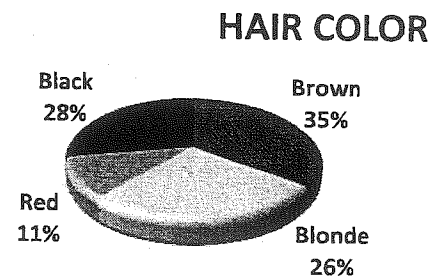
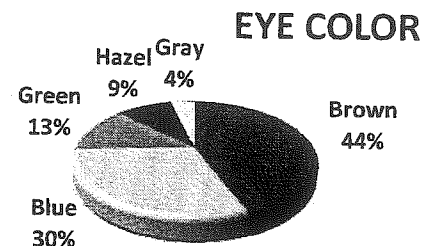
Title: _____



- According to the graph, what is the approximate heart rate at 17 minutes?
- When is the heart rate at its peak?
- Using the results from the graph, describe what happens to heart rate during before, during and after exercise.

4. Answer the questions about the **pie charts** below.

- What is the **most** common hair color?
- Rank eye color from most common to least common eye color.
- What is the **most** likely eye and hair color combination you might find in the human population?
- What is the **least** likely eye and hair color combination you might find in the human population?



There's a GRAPH for That! Name: _____

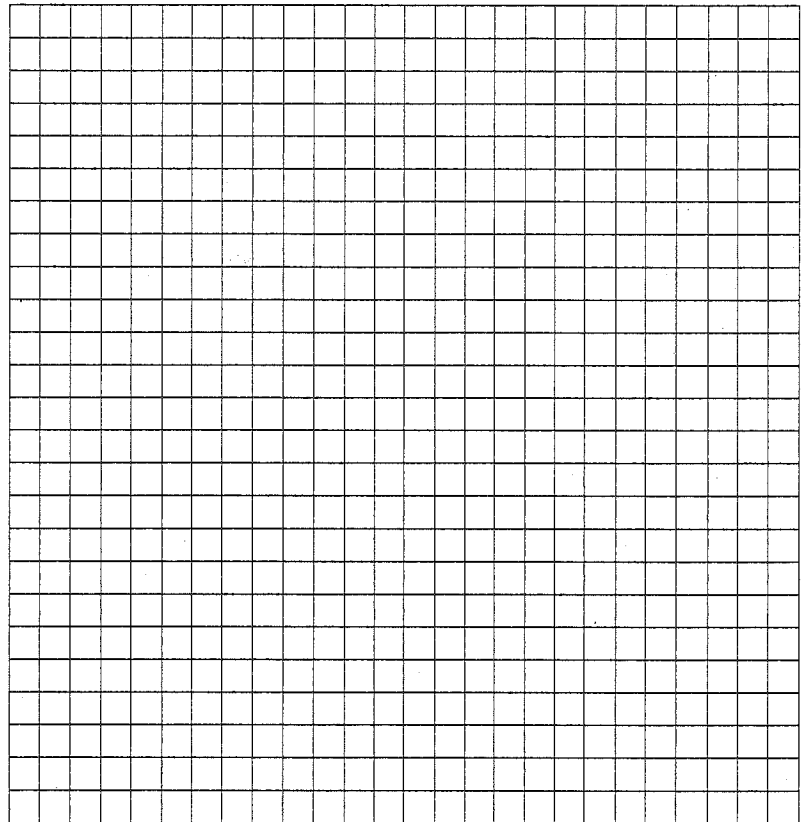
Practice Using, Making & Interpreting Graphs

What You Do:
(continued...)

5. Make a **double line graph** comparing the following:

YEAR	Hawk Population	Chipmunk Population
2001	3	26
2002	3	30
2003	3	42
2004	6	54
2005	10	60
2006	10	50
2007	10	38
2008	8	32
2009	7	30
2010	6	35
2011	6	40

Title: _____



- a. Explain what happened to the chipmunk population from 2001-2011.
- b. Explain what happened to the hawk population from 2001-2011.
- c. Using the data from the graph to explain your answer, why do you think the populations changed as they did during that time period?
- d. What do you think will happen to the chipmunk population over the next five years (2012-2016)?
- e. What do you think will happen to the hawk population over the next five years (2012-2016)?