Name:_____

Environmental Racism: Exploring the Data

Vocab Preview

Income	Income is the amount of money a person earns in one year.
Demographics	Demographics are measurable characteristics of a specific population. Ex: average age, number of children, income, race, country of birth, etc.

Data

**Data sourced from Barr Foundation Report "Unequal Exposure to Ecological Hazards 2005: Environmental Injustices in the Commonwealth of Massachusetts"*
***Release site numbers are rounded to the nearest thousand to facilitate graphing.*

DATA TABLE 1: **Income and Environmental Injustice in Massachusetts**

Income Bracket	Average weight of **industrial chemicals** released within 1 mi^2 of residence (pounds)**	Average number of **hazardous waste** release sites within 1 mi^2 of residence
$0 → $39,524	107,000	19.2
$39,525 → $52,700	62,000	7.2
$52,701 → $65,875	21,000	5.3
$65,876 & up	13,000	4.6

DATA TABLE 2: **Race and Environmental Injustice in Massachusetts**

Non-white population (%)	Average weight of **industrial chemicals** released within 1 mi^2 of residence (pounds)**	Average number of **hazardous waste** release sites within 1 mi^2 of residence
0 → 5%	19,000	2.1
5 → 14.99%	44,000	8.1
15 → 24.99%	192,000	28.7
25 → 100%	198,000	48.3

Part 1: Getting to Know the Data

Data Tables 1 and 2 both show the industrial chemical release sites and the hazardous waste exposure for different groups of people.

Which **demographic groups** are being compared in data table 1? _____

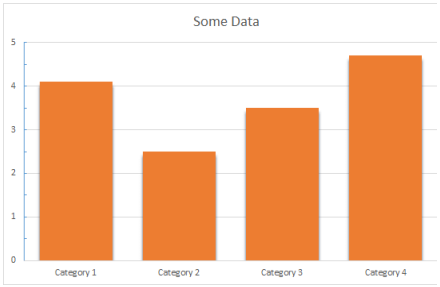
Which **demographic groups** are being compared in data table 2? _____

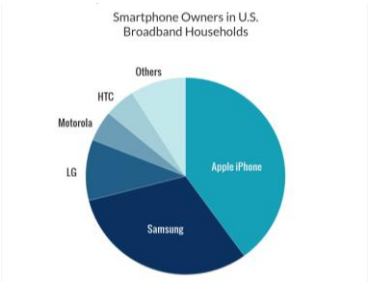
What unit is being used to measure the quantity of **industrial chemical** exposure?_____

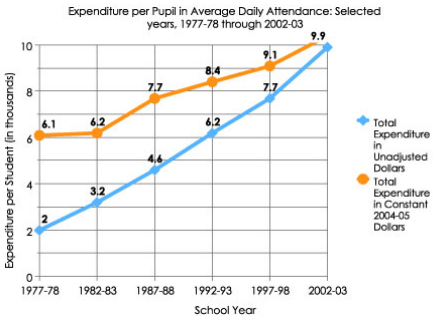
What unit is being used to measure the quantity of **hazardous waste** exposure?_____

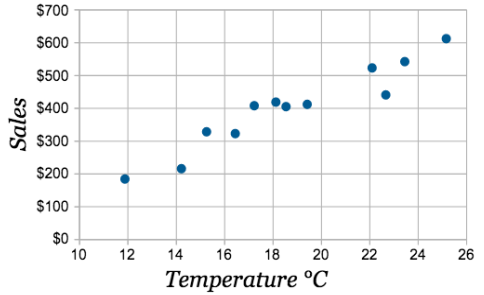
Part 2: Graphing Data

In science, we often create graphs to help us find patterns in data. The next step in your data analysis task is to create two graphs: one comparing environmental exposure based on income brackets (data table 1) and one comparing environmental exposure based on the percent of a population that is non-white (data table 2).

Graph Name	Graph Purpose	Sample Image
Bar Graph	*The purpose of a bar graph is to compare measurements in different categories.*	

Graph Name	Graph Purpose	Sample Image
Circle Graph	*The purpose of a circle graph (also called a pie chart) is to show the parts of a whole.*	

Graph Name	Graph Purpose	Sample Image
Line Graph	*The purpose of a line graph is to show how a measurement changes over time.*	

Graph Name	Graph Purpose	Sample Image
Scatterplot	*A scatterplot is used to show the relationship between two different variables.*	

Based on the descriptions above, what type of graphs do you think you will be making in this task? Explain your choice.

When you have made a hypothesis about the type of graph you will be making, ask your teacher to check your work. When you have correctly identified the types of graph you will be making, your teacher will give you a model to show you how to setup your graphs and you can begin graphing your data.

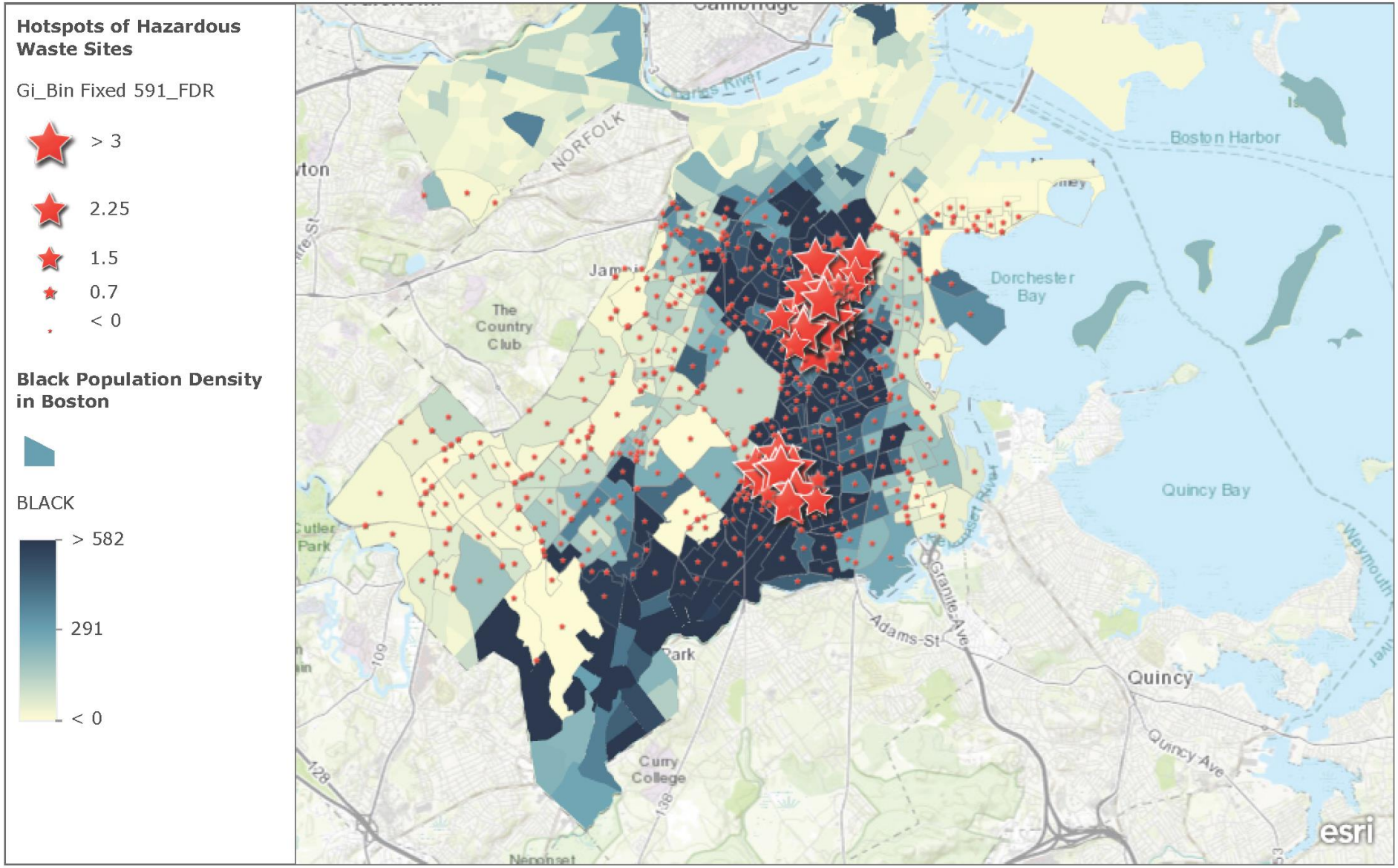
Part 3: Graph Analysis

What **patterns** do you notice from your graphs about the relationship between different demographic groups and exposure to industrial chemicals and hazardous waste? What **conclusion** can you draw from these patterns? Which data provides the best evidence to support your conclusion, and why?

Part 4: Mapping Data

So far in this assignment we have used **graphs** to **visualize and picture** patterns and relationships between **demographics** and **environmental exposure** to different types of industrial chemicals and hazards. Another way to visualize patterns in data is to create maps. Use the map below for the questions that follow.

Environmental Racism in Boston



DECODING THE MAP

What do the red stars represent? _____

What does the size of the red stars represent? _____

What do the yellow/green/blue shapes on the map represent?_____

What research question might the authors of this map have been trying to investigate?

ANALYZING THE MAP

What **patterns** do you notice in your map about the relationship between **race** and **hazardous waste exposure**? How does the map provide further evidence of environmental racism in the city of Boston?