

Name _____

Date _____

Problem Solving Practice 1: Weather Data

Precipitation in the form of rain or snow can affect people's travel and commute to work or school. So, weather data and forecasting are very important.

Sample Problem: The table below provides data on record precipitation and snowfall for two major cities, Chicago and Boston.

Precipitation Records for Chicago and Boston				
Record	Chicago		Boston	
	Amount	Year	Amount	Year
Most Precipitation	1,253 mm	1983	1,583 mm	1954
Least Precipitation	564 mm	1962	602 mm	1965
Greatest Seasonal Snowfall	204.7 cm	1978–79	273.3 cm	1995–96
Least Seasonal Snowfall	14.5 cm	1930–31	20.8 cm	1936–37

Create.

1. Make a **bar graph** that compares the greatest seasonal snowfalls for the two cities.

Read and Understand.

2. What information is given?
3. Are the years needed to make the bar graph?
4. What data will be used?

Look Back and Check.

5. Does the bar graph show a difference in snowfall?
6. Does the graph make sense?

Problem Solving Practice 2: Double Bar Graphs

To compare related sets of data, a double bar graph is often helpful. In a double bar graph, pairs of bars represent the data. A key helps identify the bars.

Municipal Solid Waste (MSW) (kilograms per person per day)		
MSW	1960	2000
Total	1.22	2.11
Recovered	0.08	0.91
Landfill	1.14	1.20

Recovered represents reused or recycled solid waste. Landfill represents discarded waste.

Create.

1. Make a **double bar graph** to compare the total amount of waste and the amount of waste recycled or reused in 1960 and in 2000.
2. Use a scale from 0 to 2.5 with an interval of 0.25. Plot the total waste and the amount not recovered for both years. Make a key.

Analyze.

3. What can be observed on this double bar graph? Name 3.

Problem Solving Practice 3: Animal Speeds

The speed of an object is determined by dividing the distance traveled by the time required to travel that distance. The formula that relates speed, distance, and time is $\text{Speed} = \frac{\text{Distance}}{\text{Time}}$

Cheetah		Coyote		Wolf	
Time (min)	Distance (km)	Time (min)	Distance (km)	Time (min)	Distance (km)
0	0	0	0	0	0
3	4.5	3	2.7	3	2.4
6	9	6	5.4	6	4.8

Sample Problem.

Use the data of the table above to create a **line graph** of distance versus time from 0 to 6 minutes for each animal.

Read and Understand.

1. What information is given?

Plan and Solve.

2. Graph the ordered pairs (time, distance) for each animal. Draw straight lines through each set of points. Label each line with the animal.

Look Back and Check.

3. How do the graphs of the lines compare to the speeds?

Problem Solving Practice 1: Kinetic Energy

All moving objects have kinetic energy. The amount of kinetic energy depends on the mass of the object and its velocity. Kinetic energy KE is given in joules (J) and is calculated using the formula $KE = \frac{1}{2} mv^2$, where **m** is the mass in kilograms and **v** is the velocity in meters per second.

Use the table of ordered pairs to create a **line graph**.

v (m/s)	KE (J)
0	0
1	2
2	8
3	18
4	32
5	50