

Data Analysis

Purpose: Using graphs to display and analyze data is an important part of any scientific process. You will be using random rolls of the dice to gather data about which sum of two dice is most likely to appear when the dice are rolled. Then use this data to practice making graphs to display information and draw conclusions. We will also practice comparing data using temperature.

Neatness counts! Make sure all your lines are straight, data is evenly spaced, labels are readable and well placed. Use colors when needed.

Procedure:

1. Roll a pair of dice thirty times and fill in the sum of both dice in the table.

| Roll | Sum | Roll | Sum | Roll | Sum |
|------|-----|------|-----|------|-----|
| 1 | | 11 | | 21 | |
| 2 | | 12 | | 22 | |
| 3 | | 13 | | 23 | |
| 4 | | 14 | | 24 | |
| 5 | | 15 | | 25 | |
| 6 | | 16 | | 26 | |
| 7 | | 17 | | 27 | |
| 8 | | 18 | | 28 | |
| 9 | | 19 | | 29 | |
| 10 | | 20 | | 30 | |

2. Fill in the data table below with the number of rolls resulting in each sum. (How many times did you roll each sum?)

| Sum | # of Rolls | Sum | # of Rolls |
|-----|------------|-----|------------|
| 2 | | 8 | |
| 3 | | 9 | |
| 4 | | 10 | |
| 5 | | 11 | |
| 6 | | 12 | |
| 7 | | | |

3. On the graph paper attached, create a **line graph** that shows the frequency with which each sum appeared when the dice were rolled. Make sure to set up your graph so that each axis goes from zero to the highest number needed to fit the data. Your graph needs to have even spacing, straight lines, labels and a title.

4. Share information with another student. Fill in their data below and give them yours. **Add a second line to your graph** to show their data. Change colors or symbols and add a key to make your graph easy to read.

| Sum | # of Rolls | Sum | # of Rolls |
|------------|-------------------|------------|-------------------|
| 2 | | 8 | |
| 3 | | 9 | |
| 4 | | 10 | |
| 5 | | 11 | |
| 6 | | 12 | |
| 7 | | | |

5. Make a **stacked bar graph** that includes both sets of data that were gathered for this activity so far. A stacked bar graph means that you will stack the data from your classmate on top of your own data on the bar graph using a second color. This allows you to analyze what happens when the data is combined. Again, be sure to use labels and include a key.

Conclusion: What is the most common sum when a pair of dice is tossed? _____

6. Create a **line graph** by plotting the average monthly temperatures of *Dallas, TX* and *Denver, Colorado*. Make each line a different color. Show a legend (as well as the other typical graph features).
7. Create a **stacked bar graph** using the average monthly temperatures of *Fargo, North Dakota* and *Los Angeles, California*. Use a different color to represent each city. Show a legend (as well as the other typical graph features).