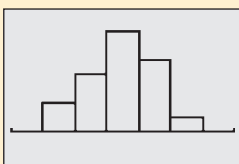
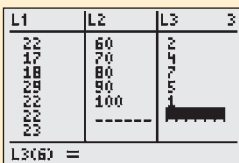
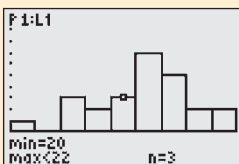
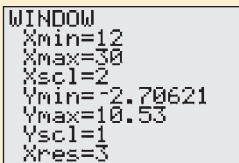
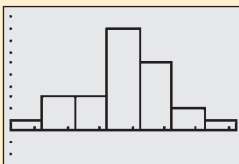
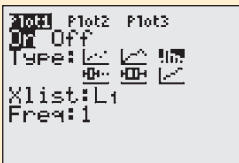
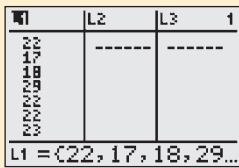


T1 Tips

Making a histogram



Your calculator can create histograms. First you need some data. For an agility test, fourth-grade children jump from side to side across a set of parallel lines, counting the number of lines they clear in 30 seconds. Here are their scores:

22, 17, 18, 29, 22, 22, 23, 24, 23, 17, 21, 25, 20  
12, 19, 28, 24, 22, 21, 25, 26, 25, 16, 27, 22

Enter these data into **L1**.

Now set up the calculator's plot:

- Go to **2nd STATPLOT**, choose **Plot1**, then **ENTER**.
- In the **Plot1** screen choose **On**, select the little histogram icon, then specify **Xlist:L1** and **Freq:1**.
- Be sure to turn off any other graphs the calculator may be set up for. Just hit the **Y=** button, and deactivate any functions seen there.

All set? To create your preliminary plot go to **ZOOM**, select **9:ZoomStat**, and then **ENTER**.

You now see the calculator's initial attempt to create a histogram of these data. Not bad. We can see that the distribution is roughly symmetric. But it's hard to tell exactly what this histogram shows, right? Let's fix it up a bit.

- Under **WINDOW**, let's reset the bins to convenient, sensible values. Try **Xmin=12**, **Xmax=30** and **Xscl=2**. That specifies the range of values along the *x*-axis and makes each bar span two lines.
- Hit **GRAPH** (not **ZoomStat**—this time we want control of the scale!).

There. We still see rough symmetry, but also see that one of the scores was much lower than the others. Note that you can now find out exactly what the bars indicate by activating **TRACE** and then moving across the histogram using the arrow keys. For each bar the calculator will indicate the interval of values and the number of data values in that bin. We see that 3 kids had agility scores of 20 or 21.

Play around with the **WINDOW** settings. A different **Ymax** will make the bars appear shorter or taller. What happens if you set the bar width (**Xscl**) smaller? Or larger? You don't want to lump lots of values into just a few bins or make so many bins that the overall shape of the histogram is not clear. Choosing the best bar width takes practice.

Finally, suppose the data are given as a frequency table. Consider a set of test scores, with two grades in the 60s, four in the 70s, seven in the 80s, five in the 90s, and one 100. Enter the group cutoffs 60, 70, 80, 90, 100 in **L2** and the corresponding frequencies 2, 4, 7, 5, 1 in **L3**. When you set up the histogram **STATPLOT**, specify **Xlist:L2** and **Freq:L3**. Can you specify the **WINDOW** settings to make this histogram look the way you want it? (By the way, if you get a **DIM MISMATCH** error, it means you can't count. Look at **L2** and **L3**; you'll see the two lists don't have the same number of entries. Fix the problem by correcting the data you entered.)