

# Mean, Mode, and Bar Graphs

Do you think you could calculate the average from the data shown in the bar graph? After all, we do have numbers involved.

Actually, we can't. To see why, you need to think *what kind of original data* produced this graph. What was asked of the people in the study? What did they respond?

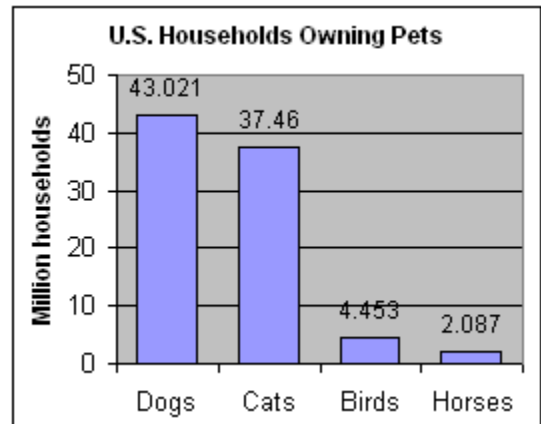
The people were asked something like, "What pets do you have?" The people would have answered, "Cat," or "Dog", and so on.

The original data set consists simply of the words "cat", "dog", bird", and "horse", each one listed many times, because each mention of a "cat" would mean one particular household's answer.

*cat, cat, dog, dog, dog, bird, dog, dog, bird, cat, dog, horse, dog, cat, dog, ....*

We cannot calculate anything from this kind of data set because it's not numerical data! But we CAN find the most commonly occurring item, and that is called the *mode*.

In this case, the mode is *dog* because it made the highest bar on the graph.



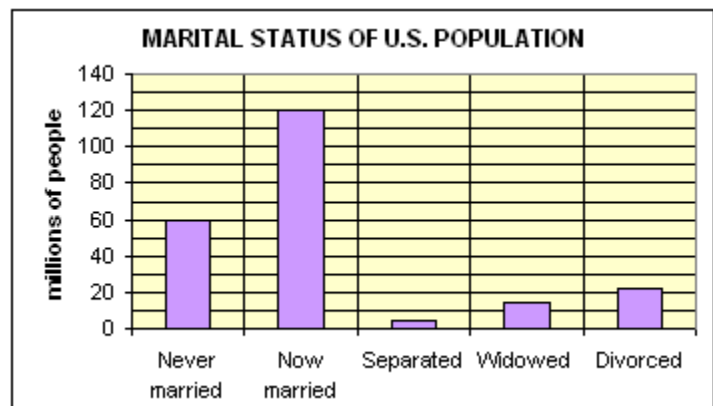
**Mode is the most commonly occurring item in a data set.**

- Sometimes a set of data can have two or more modes. For example, the data set *green, green, blue, blue, black, brown, hazel* has two modes: both green and blue are equally common.
- If none of the items occurs twice or more, there is no mode. For example, this data: *green, blue, pink, red, black, brown, purple* has no mode.

1. Find the mode of the data set shown in the bar graph on the right.

2. a. Find the mode of this data:

water, pop, juice, pop, juice, water,  
milk, water, pop, pop, juice, pop

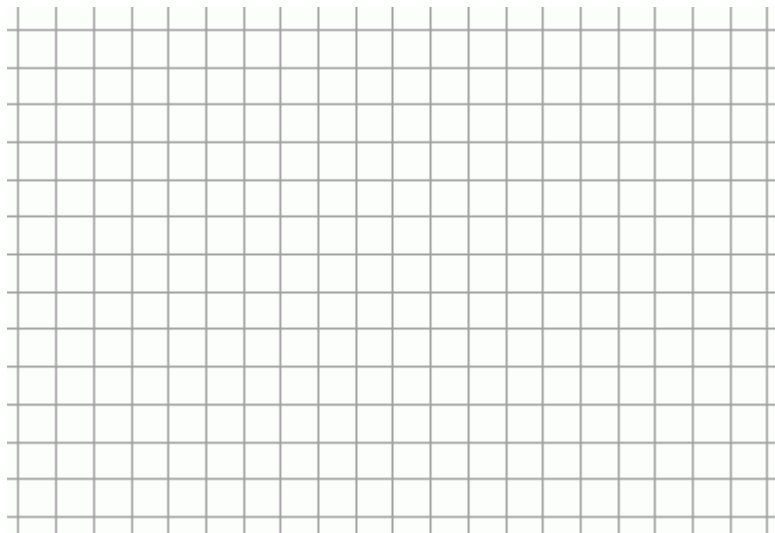


b. If the above are the answers of 12 people to some question, what could have been the question?

3. Twenty kids were asked about their favorite ice cream flavor. These are their responses:

strawberry, vanilla, chocolate, vanilla, chocolate chip, chocolate, pecan, pecan, vanilla, vanilla, strawberry, chocolate chip, vanilla, chocolate, chocolate, vanilla, strawberry, chocolate chip, strawberry, vanilla.

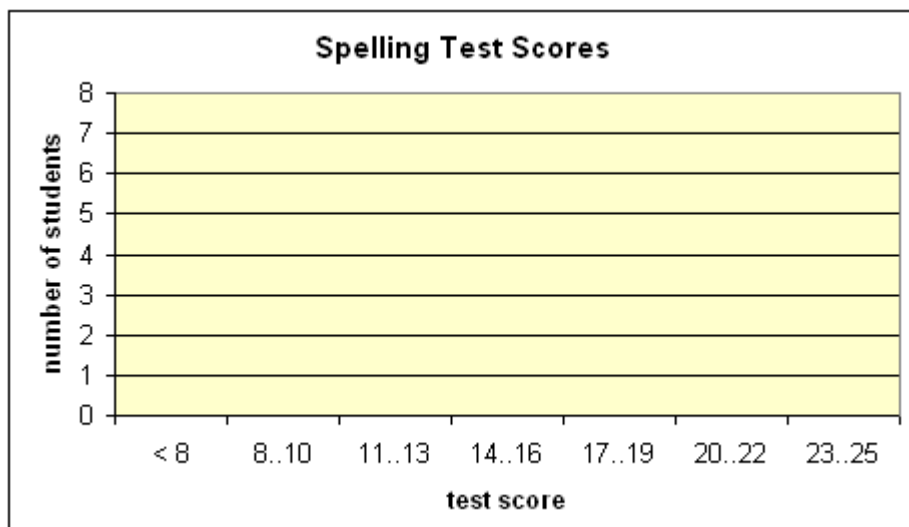
- Find the mode.
- Draw a bar graph.
- If possible, calculate the average.



4. These are the spelling test scores of a fifth grade class:  
4 5 7 9 9 10 10 11 11 12 12 12 13 14 17 18 18 18 19 19 19 20 24 25

- Find the mode.
- Draw a bar graph.
- If possible, calculate the average.

Test Score	Frequency
< 8	
8..10	
11..13	
14..16	
17..19	
20..22	
23..25	



5. a. Find the mode.
- b. Draw a bar graph.
- c. If possible, calculate the average.
- d. There were \_\_\_\_ students in all. What *fraction* of the students got grade B?

Grades of a math class

Grade	Frequency
F	2
E	4
D	7
C	11
B	16
A	10

