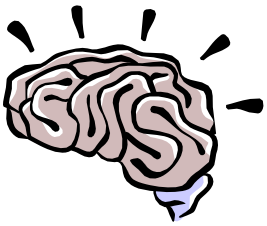
More mind games



TASK

The graph below shows the results from one class to the question from *CensusAtSchool* 2005/2006:

"In a normal week on how many days do you eat meat?"

1. How many children are in the class?

2. What was the average (mean) number of days meat was eaten per student?

3. If the 4 students who said they eat meat on 6 or 7 days a week were not present on the day they answered the question what would the average (mean) number of days meat was eaten change to?

4. If you round your answers to the last two questions to the nearest number of days what do you find? Try to explain why this might surprise some people? Would using a different type of average give different answers?

5. Do you think there is a particular day of the week when more students are likely to be eating meat?

6. For how many days in a month of 31 days would you expect meat to be being eaten by a member of the class?

7. If one student from the class was picked randomly, what is the chance that they would be eating meat every day of the month? What is the chance they would not be eating meat at all during the month?

8. What problems would you encounter if you tried to work out the probability of one student from the class, picked randomly, eating meat that day?

More mind games

ANSWERS

1. 30

2. $\frac{Number\ of\ days\ meat\ is\ being\ eaten}{Number\ of\ students} = \frac{102}{30} = 3.4\ days$

3. $\frac{Number\ of\ days\ meat\ is\ being\ eaten}{Number\ of\ students} = \frac{77}{26} = 2.96\ days$

   (If children incorrectly do not adjust the number of students from 30 to 26 they will get an answer of 2.6)

4. They both round to 3, which is surprising as the 4 people who eat the most meat have been removed and the expectation would be that the average would go down. If you use other types of average the mode remains at 4 but the median reduces from 4 to 3.

5. Possibly Sunday when the traditional British roast is eaten

6. Mathematically: you would expect the average per day, 3.4 adjusted from a week to a month $\frac{3.4}{7} \times 31 = 15.0571$. So approximately 15 days. However thinking about it in common sense terms it is highly likely that at least 1 person in the class is eating meat on every day of the month, therefore the answer would be 31!

7. Everyday = $\frac{1}{30} = 0.033$ No day = $\frac{1}{30} = 0.033$

8. This question is possible to answer but very difficult as you have no idea which 3 days a 3 day a week meat eater eats meat on! You might also pick the person who never eats meat, in which case the answer would be 0 or the person who eats meat every day so the answer would be 1.