

Teachers' Notes

These question sheets are based on the Food data file which was a free download during 2000-2001.

The file is available as an Excel spreadsheet, an Information Workshop file, and as a text file so you should be able to access it and use it with virtually any data-handling software.

The questions on the sheets are arranged according to National Curriculum levels, covering levels 3, 4, 5 and 6, based on the level descriptions for ICT and mathematics. The first page of questions in the level 3 section are probably only level 2 but I decided to group them with those for level 3. Please bear in mind that decisions about levels of difficulty are very subjective and so you may not agree with the level that has been assigned to any given question.

Use the Food Data File to Answer these Questions

1. Skim through the data file until you find Bananas.
How much energy do they contain?
How much water do they contain?
How much vitamin C do they contain?
2. Skim through the data file until you find Pears. Do pears contain more or less water than bananas?
3. Skim through the data file until you find Peanuts.
How much energy do they contain?
How much protein do they contain?
How much fat do they contain?
4. Skim through the data file until you find Brazil Nuts.
Do they contain more or less protein than peanuts?
Do they contain more or less fat than peanuts?
5. Look at the information for Rice Krispies, Shredded Wheat and Sugar Puffs.
Which one contains the most energy?
Which one contains the most protein?
Which one contains the most vitamin B1?
6. Look at the information for the different ways of cooking Cod.
Which method of cooking cod gives the lowest calorie (energy) value?
Which method of cooking cod gives the highest fat value?
7. Look at the information for Butter and Margarine.
Which one contains the most fat?

8. Sort the foods according to the amount of vitamin C they contain.
Which food contains the most vitamin C?
How much vitamin C does it contain?
9. Sort the foods according to the amount of fat they contain.
Which foods contain the most fat?
10. Sort the foods according to the amount of water they contain.
What sorts of foods (ignore drinks) contain the most water?
11. Sort the foods according to the amount of vitamin A they contain.
Which food contains the most vitamin A?
How much vitamin A does it contain?
12. How many foods contain no water at all?
13. How many foods have an energy value of exactly 10 Kcal?
What sorts of foods are they?
14. How many foods have an energy value greater than 500 Kcal?
15. How many foods contain no protein at all?
16. How many foods contain exactly 40g of fat?
17. How many foods contain more than 50mg of vitamin C?
What sorts of foods are they?
18. How many foods contain exactly 1mg of vitamin B1?
What sorts of foods are they?

Use the Food Data File to Answer these Questions

1. Produce a graph which shows the energy values of the foods.
Describe the graph in your own words.
Which energy category is the most popular?
2. Produce a graph which shows the fat values for the foods.
Describe the graph in your own words.
Which is the most popular fat category?
What is the special name for the most popular value or most popular category?
3. How many foods contain between 20 g and 30 g of protein (not including 20 g and 30 g)?
4. How many foods contain between 50 g and 60 g of water (not including 50 g and 60 g)?
5. How many foods have an energy value between 150 Kcal and 200 Kcal (not including 150 Kcal and 200 Kcal)?
6. How many foods have less than 10 g of fat and less than 10 g of water (not including 10 g)?
7. How many foods have more than 25 g of protein and more than 25 g of fat (not including 25 g)?
What sort of foods are these?
8. How many foods have more than 1 mg of vitamin B1 and more than 1 mg of vitamin B2 (not including 1 mg)?
9. How many foods have more than 50 mg of vitamin A and more than 50 mg of vitamin C (not including 50 mg)?

Use the Food Data File to Answer these Questions

1. What is the range for the amount of vitamin A?
What is the range for the amount of vitamin C?
What are these figures telling you about the vitamin A values compared to the vitamin C values?
2. What is the mean amount of vitamin A in the foods?
What is the mean amount of vitamin C in the foods?
What are these figures telling about the vitamin A values compared to the vitamin C values?
3. Are there any foods that are high in protein but very low in fat?
Are there any foods for which the reverse is true?.
4. If you wanted to follow a diet of foods that are high in protein and also high in vitamins, what sorts of thing might you eat?
5. If you wanted to follow a diet of foods that are low in energy and also high in vitamins, what sorts of thing might you eat?.
6. Can you find any fatty foods that contain high levels of vitamins?

Use the Food Data File to Answer these Questions

1. Is there a relationship between the amount of energy a food contains and the amount of fat it contains?
Explain carefully how you investigated this.
2. Is there a relationship between the amount of energy a food contains and the amount of water it contains?
Explain carefully how you investigated this.
3. In what ways are the relationships in questions 1 and 2 different?
Explain your answer carefully.
4. Find the mean protein value.
Find the median protein value.
Find the modal protein category (the most popular protein category when you graph the values).
What do you notice about the mean, the median and the mode?
Explain your answer carefully.
5. Find the mean energy value.
Find the median energy value.
Find the modal energy category (the most popular energy category when you graph the values).
What do you notice about the mean, the median and the mode?
Explain your answer carefully.

Answers

1. Bananas:
80 Kcal energy
70 g water
10 mg vitamin C
2. Pears contain less water.
3. Peanuts:
570 Kcal energy
24 g protein
50 g fat
4. They contain less protein.
They contain more fat.
5. Most energy:
Rice Krispies and Sugar
Puffs (350 Kcal).
Most protein:
Shredded Wheat (10.5 g).
Most vitamin B1:
Rice Krispies (1 mg).
6. Lowest calorie value:
Steamed (80 Kcal).
Highest fat value:
Fried (10 g).
7. Butter (82 g).
8. Blackcurrants (200 mg).
9. Cooking fat, lard, dripping,
vegetable oil (100g).
10. Vegetables.
11. Carrots (12000 mg).
12. 6 foods contain no water.
13. 11 foods.
Vegetables.
14. 25 foods.
15. 30 foods.
16. 4 foods.
17. 12 foods.
Fruit and vegetables
18. 6 foods.
Cereals and nuts.

Answers

1. Description the graph of energy values in your own words.
Most popular category will depend on the groupings but generally speaking it should be the <100 Kcal category.
2. Description the graph of fat values in your own words.
Most popular category will depend on the groupings but generally speaking it should be the <10 g category.
The mode.
3. 74 foods.
4. 43 foods.
5. 23 foods.
6. 25 foods.
7. 5 foods.
They are all dairy products.
8. 2 foods.
9. 4 foods.

Answers

1. Range for vitamin A is 12000 mg.
Range for vitamin C is 200 mg.
The vitamin A values are more spread out.
2. Mean for vitamin A is 149.64 mg.
Mean for vitamin C is 6.39 mg.
The mean vitamin A value is higher, suggesting that the vitamin A values tend to be higher than the vitamin C values.
3. Find all of the foods that are high in protein but low in fat.
This begs the question, what do we mean by 'high in protein' and 'low in fat'. Some pupils might use cut-off points of their own choosing when searching. A more systematic approach is to use the mean figures as the cut-off points i.e. find foods that have above average protein values and below average fat values.
The sorts of foods you find include starch-reduced bread rolls and crispbreads.
The low protein, high fat foods include nuts, butter, margarine, fats etc.
4. Find foods that are high in protein and also high in vitamins.
See comments in answer 3 above.
The sorts of foods you find include dried egg and soya products.
5. Low energy, high vitamin foods tend to be fruit and vegetables.
6. High fat, high vitamin foods include butter, margarine, suet and nuts..

Use the Food Data File to Answer these Questions

1. Is there a relationship between the amount of energy and the amount of fat?
A scattergraph shows that there is a relationship between the amount of energy and the amount of fat.
2. Is there a relationship between the amount of energy and the amount of water?
A scattergraph shows that there is a relationship between the amount of energy and the amount of water.
3. The relationship in question 1 is positive i.e. high values in one variable are associated with high values in the other; low values in one variable are associated with low values in the other.
The relationship in question 2 is a negative or inverse relationship i.e. high values in one variable are associated with low values in the other and vice versa.
4. Mean protein value is 11 g.
Median protein value is 7 g.
Modal protein category will depend on how the data is grouped.
All three values are roughly the same.
5. Mean energy value is 210 Kcal.
Median energy value is 200 Kcal.
Modal energy category will depend on how the data is grouped.
All three values are roughly the same.