

Reasoning and Problem Solving

Step 6: Pie Charts with Percentages

National Curriculum Objectives:

Mathematics Year 6: (6S1) [Interpret and construct pie charts and line graphs and use these to solve problems](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Turn a pie chart into a table. Values are multiples of 10 up to 5 selections.

Expected Turn a pie chart into a table. Values are multiples of 5 and with up to 5 selections.

Greater Depth Turn a pie chart into a table. Values are multiples of any number and with up to 5 sets of input data.

Questions 2, 5 and 8 (Reasoning)

Developing Explain a child's mistake in reading a pie chart. Values are multiples of 10 with up to 5 selections.

Expected Explain a child's mistake in reading a pie chart. Values are multiples of 5 and with up to 5 selections.

Greater Depth Values are multiples of any number and with varying amounts of input data. Can be more than 1 pie chart.

Questions 3, 6 and 9 (Reasoning)

Developing What information can you get from this pie chart. Values are multiples of 10 with up to 5 selections.

Expected What information can you get from this pie chart. Values are multiples of 10 and with up to 5 selections.

Greater Depth What information can you get from this pie chart. Values are multiples of any number and with varying amounts of input data. Can be more than 1 pie chart.

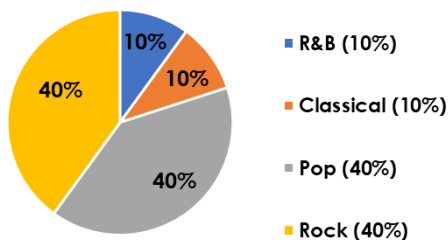
More [Year 6 Statistics](#) resources.

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Pie Charts with Percentages

1a. Children were asked their favourite genre of music. This was the result:

Favourite Genre of Music



20 children chose pop.

Use this information to help you convert the pie chart into a table.

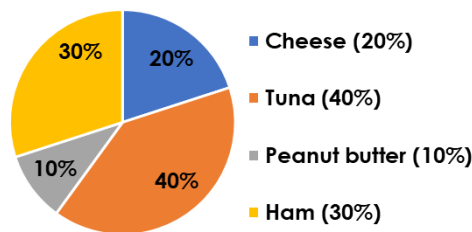


PS

Pie Charts with Percentages

1b. Children were asked their favourite sandwich filling. This was the result:

Favourite Sandwich Filling



5 children chose peanut butter.

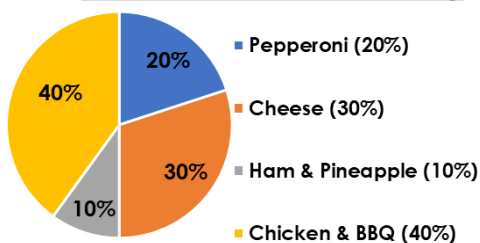
Use this information to help you convert the pie chart into a table.



PS

2a. Klara is reading a pie chart about the favourite pizza toppings of 50 children.

Favourite Pizza Topping



She says,

Most people like chicken and BBQ on their pizza.

Klara

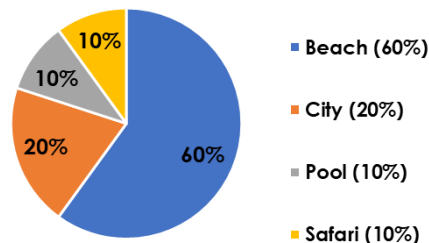


Is she right? Explain how you know.

R

2b. Hugh is reading a pie chart about the favourite destinations of 50 children.

Favourite Holiday Destination



He says,

Twenty children like city breaks.

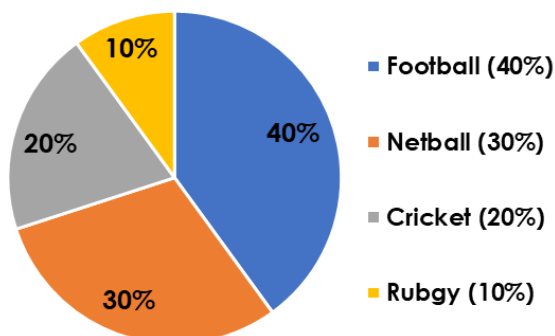
Hugh



Is he right? Explain how you know.

R

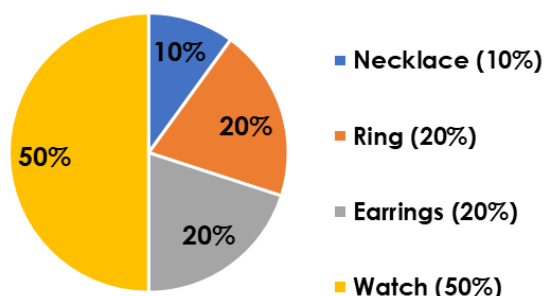
3a. What information can you get from this pie chart? What does it not tell you?



R

3b. What information can you get from this pie chart? What does it not tell you?

Favourite Type of Jewellery

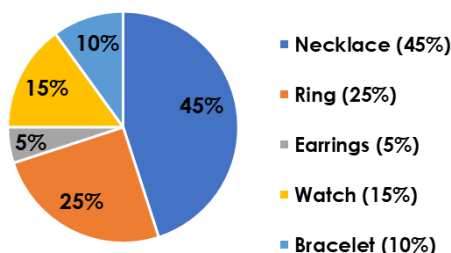


R

Pie Charts with Percentages

4a. Children were asked what their favourite type of jewellery was. This was the result:

Favourite Type of Jewellery



90 children prefer necklaces.

Use this information to help you convert the pie chart into a table.

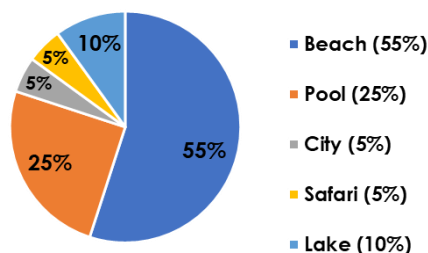


PS

Pie Charts with Percentages

4b. Children were asked their favourite holiday destination. This was the result:

Favourite Holiday Destination



110 children chose beach holidays.

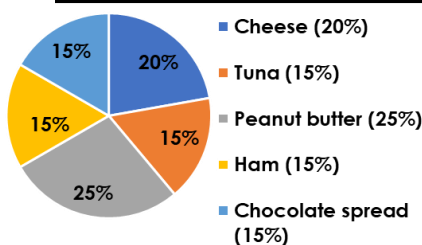
Use this information to help you convert the pie chart into a table.



PS

5a. Lisa is reading a pie chart about the favourite sandwich fillings of 60 children.

Favourite Sandwich Filling



She says,

Twice as many said peanut butter as said cheese.

Lisa

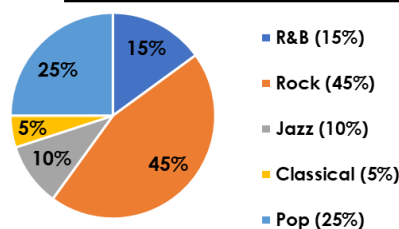


Is she right? Explain how you know.

R

5b. Carly is reading a pie chart about the favourite music genre of 200 children.

Favourite Genre of Music



She says,

The number who like classical is three quarters as many as like jazz.

Carly

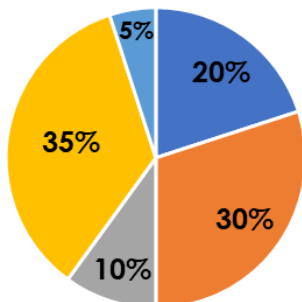


Is she right? Explain how you know.

R

6a. What information can you get from this pie chart? What does it not tell you?

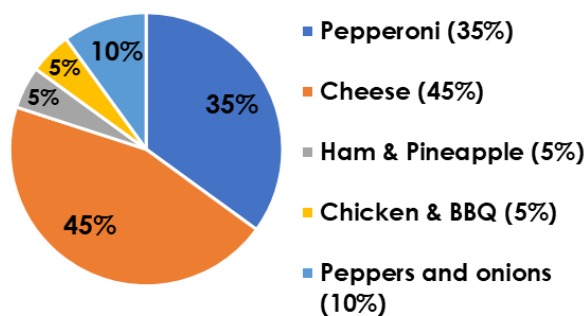
Favourite Hot Drink



R

6b. What information can you get from this pie chart? What does it not tell you?

Favourite Pizza Topping

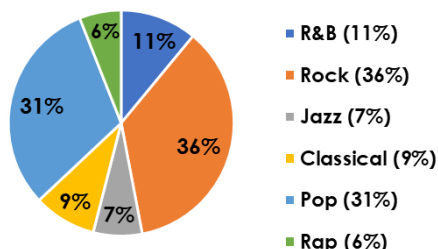


R

Pie Charts with Percentages

7a. Children were asked about their favourite genre of music. This was the result:

Favourite Genre of Music



22 children like R&B.

Use this information to help you convert the pie chart into a table.

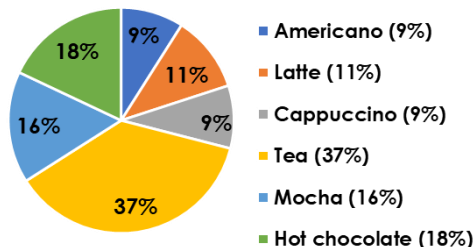


PS

Pie Charts with Percentages

7b. Children were asked their favourite hot drink. This was the result:

Favourite Hot Drink



18 children chose cappuccino.

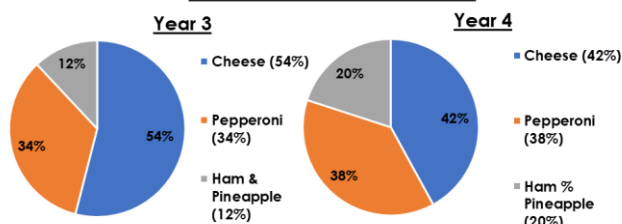
Use this information to help you convert the pie chart into a table.



PS

8a. Nina is reading pie charts about the pizza topping preferences of 100 children (50 in each of years 3 and 4.)

Favourite Pizza Topping



She says,

96% of children liked cheese.

Nina

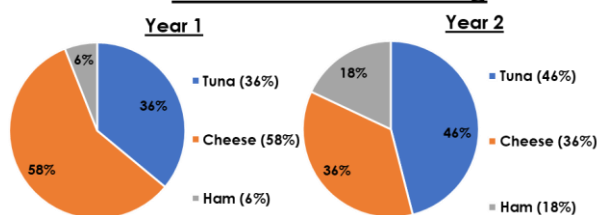


Is she right? Explain how you know.

R

8b. Sam is reading pie charts about the favourite sandwich fillings of 100 children. (50 in each year group.)

Favourite Sandwich Filling



He says,

More than half of the children said cheese.

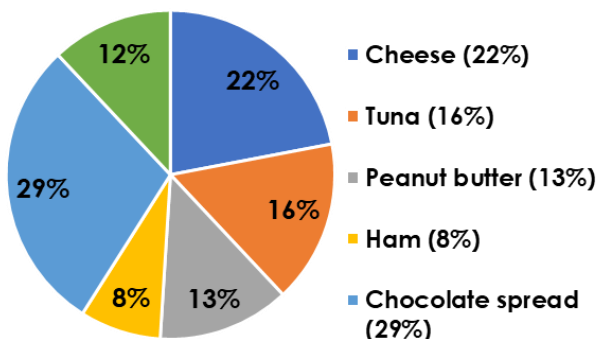
Sam



Is he right? Explain how you know.

R

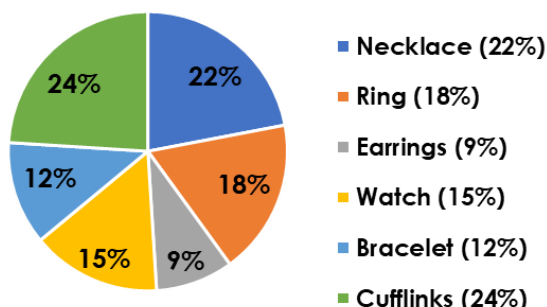
9a. What information can you get from this pie chart? What does it not tell you?



R

9b. What information can you get from this pie chart? What does it not tell you?

Favourite Type of Jewellery



R

Reasoning and Problem Solving Pie Charts with Percentages

Developing

- 1a. R&B – 5, Classical – 5, Pop – 20, Rock – 20
2a. No, although that section is largest it is not over 50%.
3a. Various answers, for example: It tells you that twice as many said/chose cricket than rugby. It does not tell you what people were choosing for as it has no title.

Expected

- 4a. Necklace – 90, Ring – 50, Earrings – 10, Watch – 30, Bracelet – 20
5a. No because double 20% is 40%.
6a. Various answers, for example: That different numbers of people liked each drink. You cannot tell what the drinks were because there is no key.

Greater Depth

- 7a. R&B – 22, Rock – 72, Jazz – 14, Classical – 18, Pop – 62, Rap – 12
8a. No, she has added the percentages rather than number of children.
9a. Various answers, for example: You can tell that the proportion for cheese is larger than tuna. It does not tell you what people were choosing for as it has no title.

Reasoning and Problem Solving Pie Charts with Percentages

Developing

- 1b. Cheese – 10, Tuna – 20, Peanut Butter – 5, Ham – 15
2b. No, Hugh has not worked out what the percentage is worth; 10 children like city breaks.
3b. Various answers, for example: It tells you that half of the people asked chose a watch. It does not tell you how many people that might have been.

Expected

- 4b. Beach – 110, Pool – 50, City – 10, Safari – 10, Lake – 20
5b. No, half as many children liked classical than jazz.
6b. Various answers, for example: You can tell that just less than half of the people liked cheese. You cannot tell how many people chose any topping as there are no numbers given.

Greater Depth

- 7b. Americano – 18, Latte – 22, Cappuccino – 18, Tea – 74, Mocha – 32, Hot chocolate – 36
8b. No, he has only looked at the Year 6 pie chart.
9b. Various answers, for example: You can tell that half as many people liked earrings as rings. You cannot tell how many people chose any jewellery type as there are no numbers given.