

Reasoning and Problem Solving

Step 6: Block Diagrams

National Curriculum Objectives:

Mathematics Year 2: (2S1) [Interpret and construct simple pictograms, tally charts, block diagrams and simple tables](#)

Mathematics Year 2: (2S2a) [Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity](#)

Mathematics Year 2: (2S2b) [Ask and answer questions about totalling and comparing categorical data](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use the stem sentences to create questions about the block diagram. Each block represents 1 and question stems refer to totalling and comparing data.

Expected Use the stem sentences to create questions about the block diagram. Each block represents 2, 5 or 10 and question stems refer to totalling and comparing data.

Greater Depth Use the stem sentences to create questions about the block diagram. Each block represents 2, 5 or 10, with some half blocks used. Question stems refer to totalling and comparing data. Not all increments are marked on the scale.

Questions 2, 5 and 8 (Reasoning)

Developing Explain which statement about the block diagram is correct. Each block represents 1 and statements refer to totalling and comparing data.

Expected Explain which statement about the block diagram is correct. Each block represents 2, 5 or 10 and statements refer to totalling and comparing data.

Greater Depth Explain which statement about the block diagram is correct. Each block represents 2, 5 or 10, with some half blocks used. Statements refer to totalling and comparing data. Not all increments are marked on the scale.

Questions 3, 6 and 9 (Reasoning)

Developing Explain what is the same and what is different between two different charts. In block diagrams, each block represents 1.

Expected Explain what is the same and what is different between three different charts. In block diagrams, each block represents 2, 5 or 10.

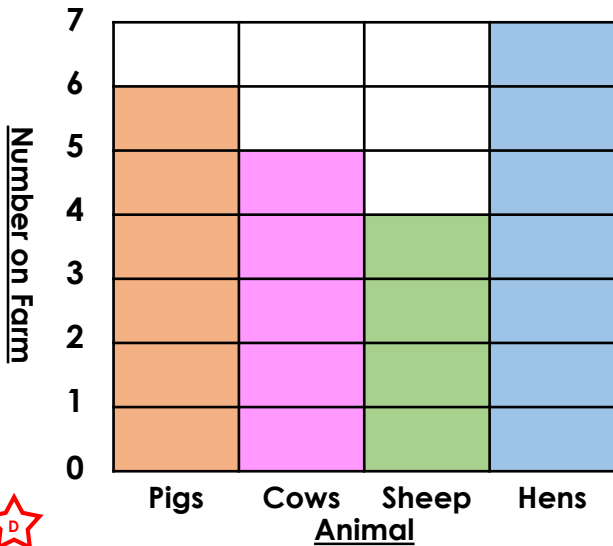
Greater Depth Explain what is the same and what is different between different charts. In block diagrams, each block represents 2, 5 or 10, with some half blocks used. Not all increments are marked on the scale.

More [Year 2 Statistics](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Block Diagrams

1a. Use the sentence stems to create two questions about the data below.



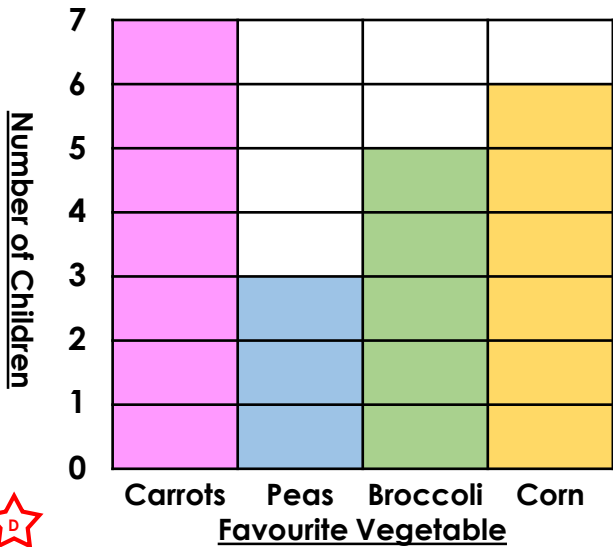
A. How many...

B. In total, how many...



PS

2a. Who is correct? Explain why.



Holly

In total, 9 children like corn or peas.



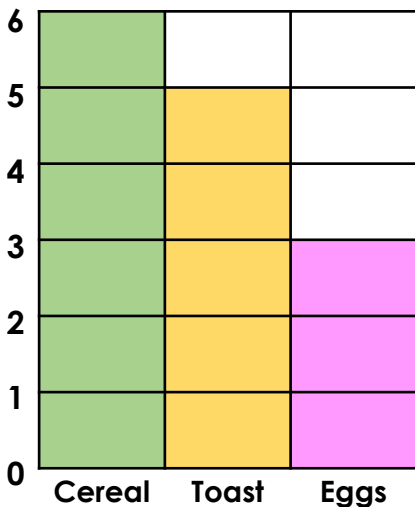
Dan

7 more children like carrots than peas.



R

3a. Look at the two sets of data below. What is the same? What is different?



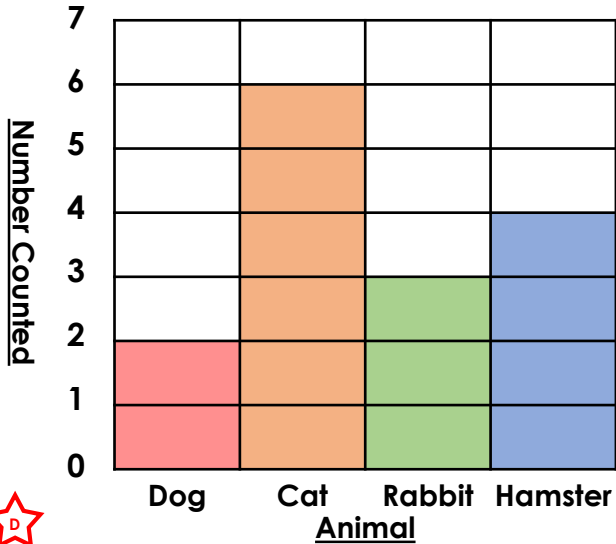
Favourite Breakfast	Number of Children
Cereal	6
Toast	4
Eggs	2



R

Block Diagrams

1b. Use the sentence stems to create two questions about the data below.



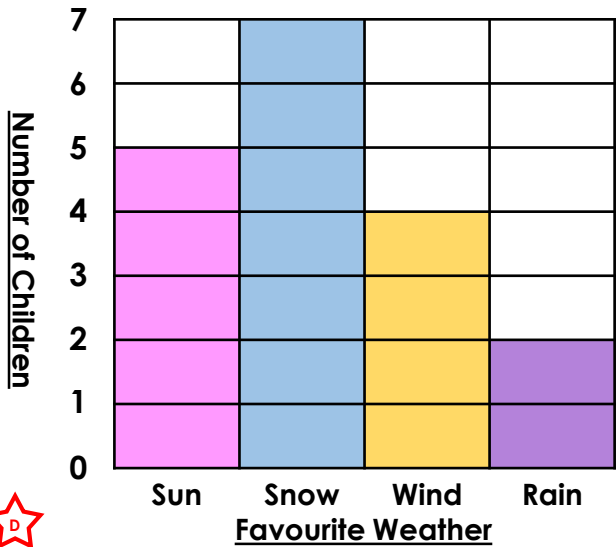
A. In total, how many...

B. How many more...



PS

2b. Who is correct? Explain why.



Ziggy

Snow was the least popular weather.



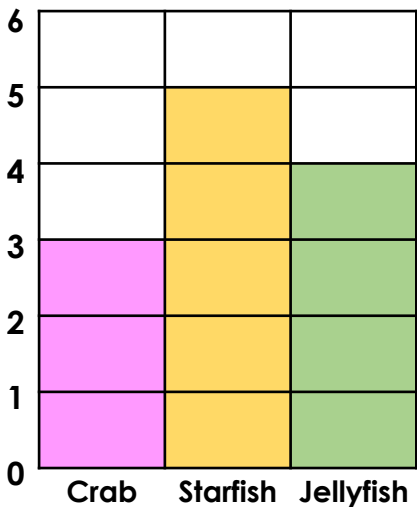
Milo

2 fewer children like sun than snow.



R

3b. Look at the two sets of data below. What is the same? What is different?



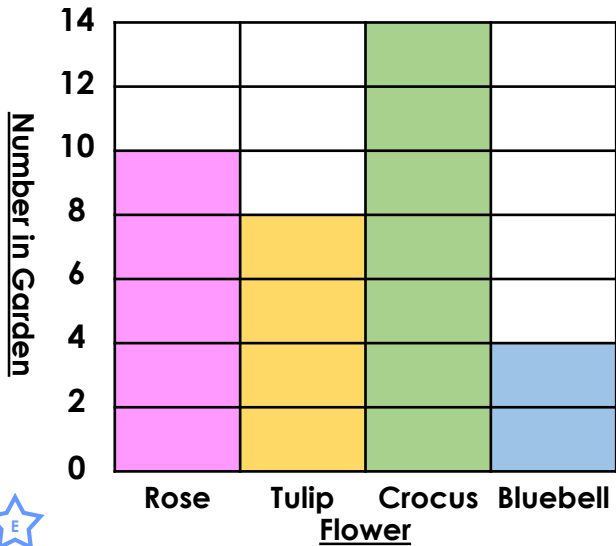
Sea Life	Number Counted
Crab	3
Starfish	5
Clam	2



R

Block Diagrams

4a. Use the sentence stems to create three questions about the data below.



A. In total, how many...

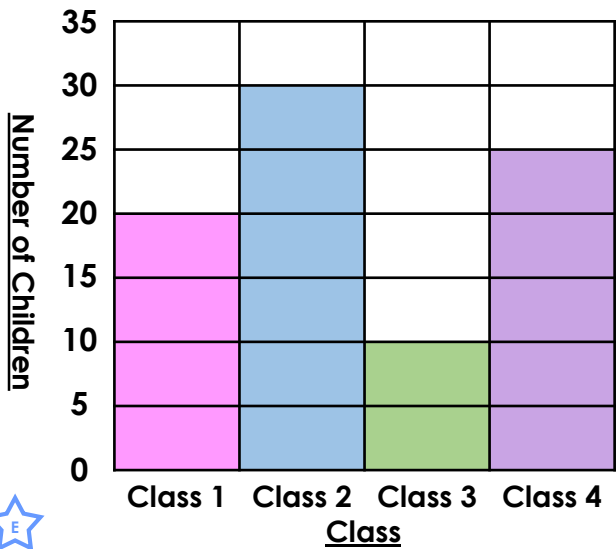
B. How many fewer...

C. How many more...



PS

5a. Who is correct? Explain why.



Anna

There are 35 children in classes 3 and 4 in total.

2 more children are in Class 1 than Class 3.

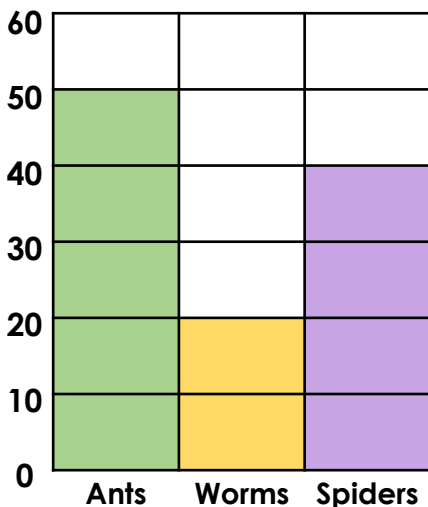


Raj



R

6a. Look at the three sets of data below. What is the same? What is different?



Bugs	Number Counted
Ants	32
Worms	20
Spiders	18

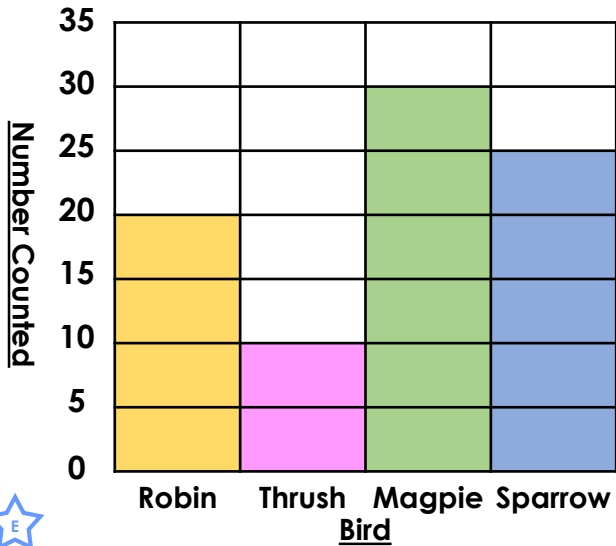
Bugs	Tally
Ants	
Worms	
Spiders	



R

Block Diagrams

4b. Use the sentence stems to create three questions about the data below.



A. How many fewer...

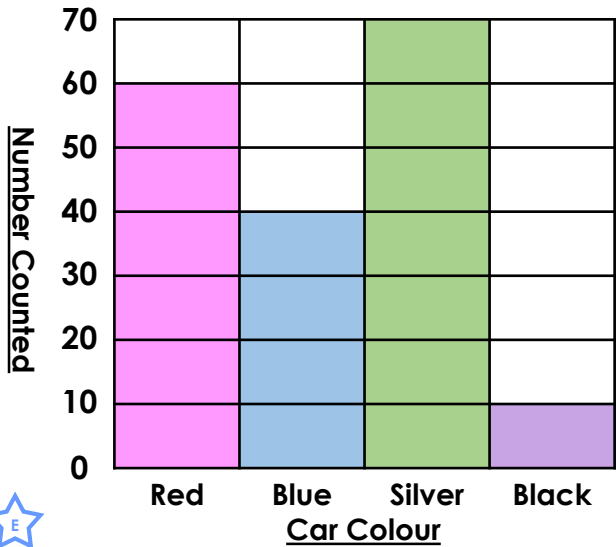
B. In total, how many...

C. Which bird...



PS

5b. Who is correct? Explain why.



Nina

We counted 20 fewer blue cars than red cars.



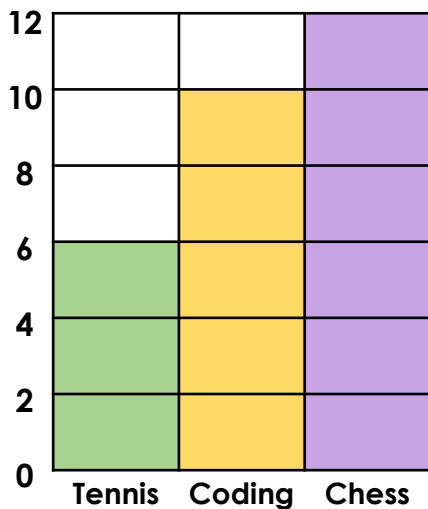
Rory

In total, we counted 13 red and silver cars.



R

6b. Look at the three sets of data below. What is the same? What is different?



Club	Number of Children
Tennis	7
Coding	11
Chess	12

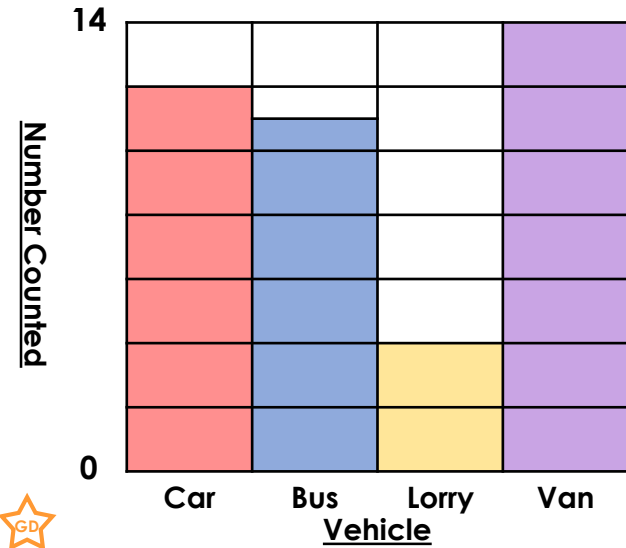
Club	Tally
Tennis	
Coding	
Chess	



R

Block Diagrams

7a. Use the sentence stems to create three questions about the data below.



A. What...

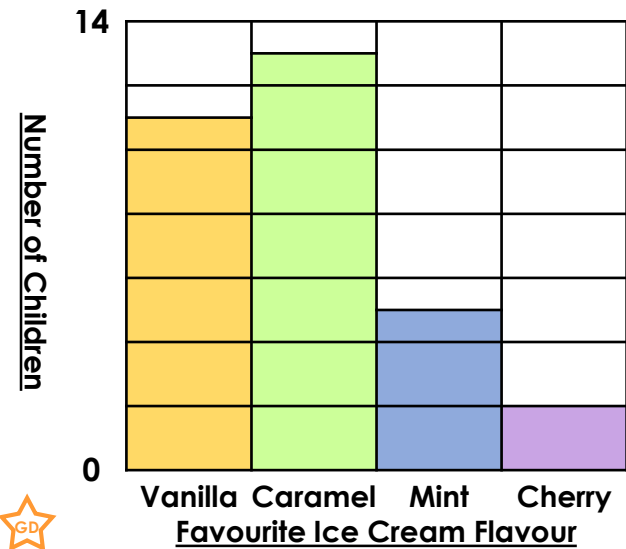
B. How...

C. Which...



PS

8a. Who is correct? Explain why.



Tilly

The difference between how many children like caramel and how many like cherry is 12.

In total, 31 children were asked about their favourite ice cream.

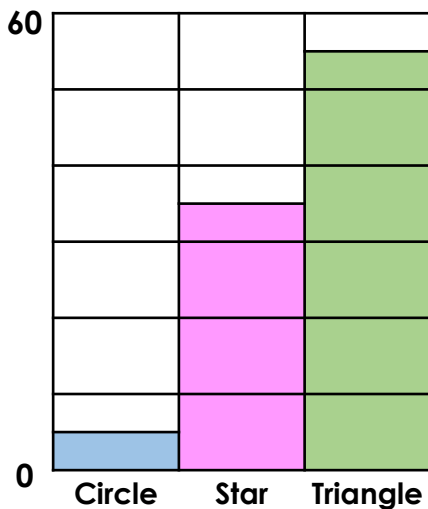


Benji



R

9a. Look at the three sets of data below. What is the same? What is different?



Button Shapes	Number Counted
Circle	
Star	
Heart	

= 10 children

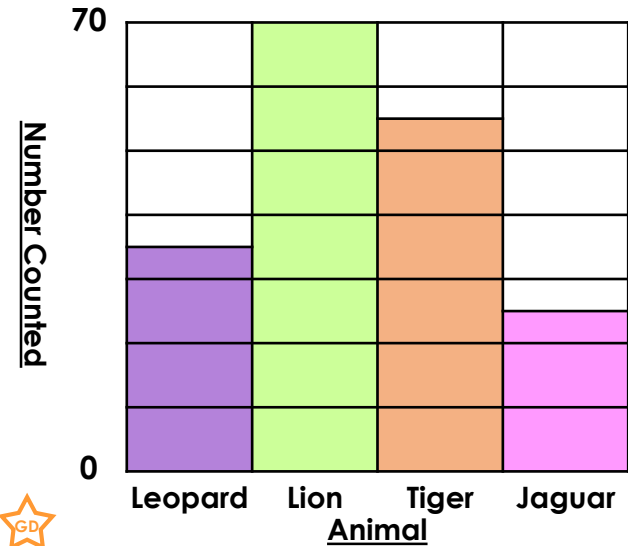
Button Shapes	Tally
Circle	
Star	
Square	



R

Block Diagrams

7b. Use the sentence stems to create three questions about the data below.



A. What...

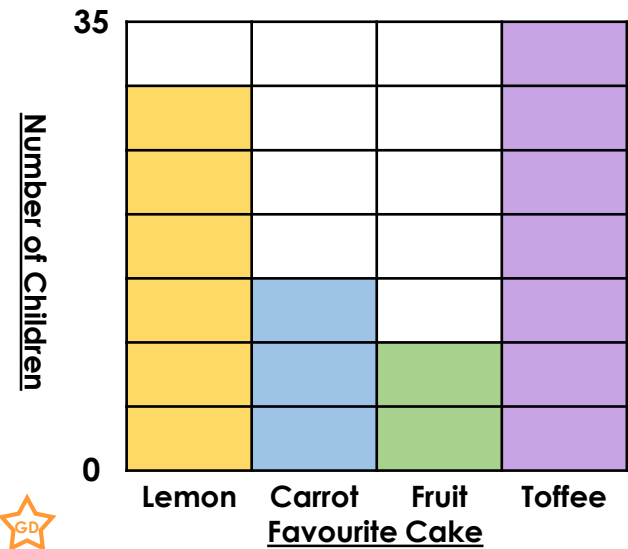
B. How...

C. Which...



PS

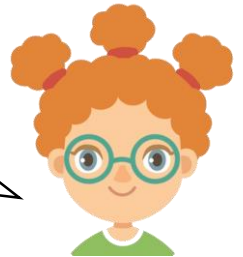
8b. Who is correct? Explain why.



Kyra

The difference between how many children like toffee and how many like fruit is 20.

Double the number of children like lemon cake rather than carrot cake.



Maisie



R

9b. Look at the three sets of data below. What is the same? What is different?



Favourite Milkshake	Number of Children
Berry	●●●●●
Chocolate	●●●●●
Vanilla	●●●●●

● = 2 children

Milkshake	Tally
Berry	
Chocolate	
Vanilla	



R

Reasoning and Problem Solving Block Diagrams

Developing

- 1a. Various answers, for example: A. How many cows are there?; B. In total, how many pigs and sheep are there?
- 2a. Holly is correct because $3 + 6 = 9$. Dan is incorrect because $7 - 3 = 4$.
- 3a. Various answers, for example: Same → Both sets of data show 6 children like cereal the best. Different → The block diagram shows 5 people like toast but the table shows only 4 people like toast.

Expected

- 4a. Various answers, for example: A. In total, how many roses and tulips are there?; B. How many fewer bluebells are there than roses? C – How many more roses are there than tulips?
- 5a. Anna is correct because $10 + 25 = 35$. Raj is incorrect because $20 - 10 = 10$.
- 6a. Various answers, for example: Same → All charts show 20 worms. Different → All charts show a different amount of spiders.

Greater Depth

- 7a. Various answers, for example: A. What is the difference between the number of lorries and cars?; B. How many fewer lorries than vans were counted?; C. Which vehicle was the most common?
- 8a. Benji is correct because $11 + 13 + 5 + 2 = 31$. Tilly is incorrect because $13 - 2 = 11$.
- 9a. Various answers, for example: Same → All charts show 5 circle button shapes. Different → All charts show a different amount of star button shapes.

Reasoning and Problem Solving Block Diagrams

Developing

- 1b. Various answers, for example: A. In total, how many rabbits and hamsters are there?; B. How many more cats are there than dogs?
- 2b. Milo is correct because $7 - 5 = 2$. Ziggy is incorrect because rain was the least popular choice.
- 3b. Various answers, for example: Same → Both sets of data show 3 crabs and 5 starfish. Different → The block diagram shows 4 jellyfish but the pictogram shows only 2 clams.

Expected

- 4b. Various answers, for example: A. How many fewer robins are there than magpies?; B. In total, how many sparrows are there?; C. Which bird was the least common?
- 5b. Nina is correct because $60 - 40 = 20$. Rory is incorrect because $60 + 70 = 130$.
- 6b. Various answers, for example: Same → All charts show 12 children went to chess club. Different → Each chart shows that a different number of children went to tennis club.

Greater Depth

- 7b. Various answers, for example: A. What is the difference between the number of leopards and lions?; B. How many lions, tigers and jaguars are there in total?; C. Which animal was the most common?
- 8b. Maisie is correct because 15 children like carrot cake and 30 like lemon. Kyra is incorrect because $35 - 10 = 25$.
- 9b. Various answers, for example: Same → All charts show 11 children liked berry flavour. Different → Each chart shows a different amount for vanilla.